SOAP AND CHEMICAL SPECIALTIES

ANUARY 1959

Donald M. King, head of Masury-Young Co., Boston, new president of CSMA.

JAN 1959
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N THIS ISSUE

Trends in light duty detergent formulation 43
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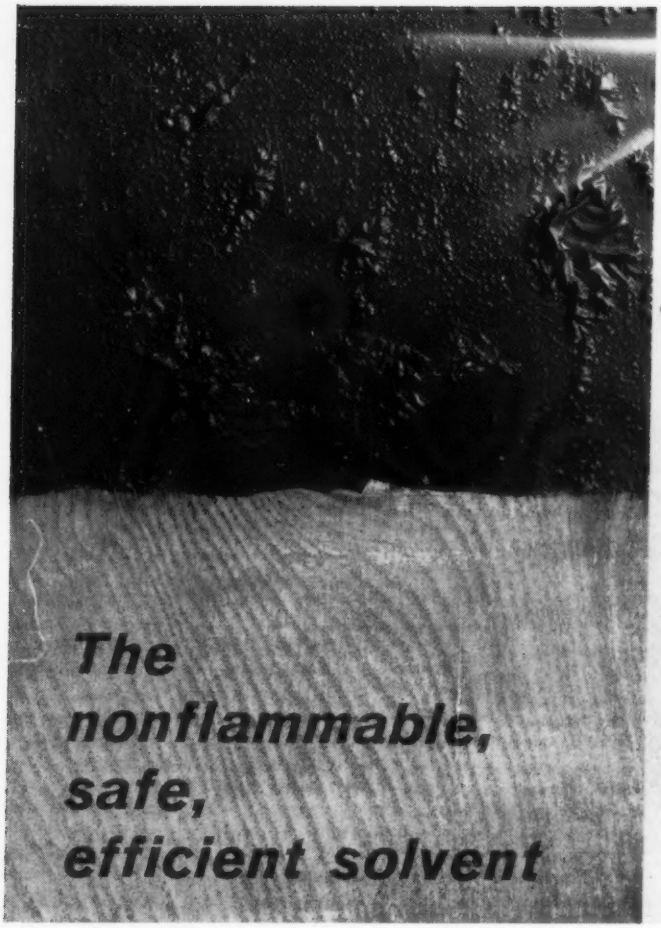

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You get a combination of salable features when you formulate with SOLVAY Methylene Chloride. Here is an *effective* solvent—fast, yet *safe* . . . nonflammable, low in toxicity, noncorrosive, and harmless to wood and metal. And, it works equally well in all of the types of paint removers shown above. We will be glad to supply a sample for testing, along with literature on formulations.

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- ☐ "Nonflammable Paint Strippers"
- ☐ Solvay Methylene Chloride for Paint Removing Compounds (7-54)
- ☐ Effect of Methylene Chloride on Nylon Paint Brushes (5-55)
- ☐ Evaporation retarders for Paint Removers (8-55)
- ☐ Research on Thickeners for Paint Removers (9-55)
- ☐ Methylene Chloride Paint Brush Cleaner (12-55)

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Rely on great skills—from Norda. Expect even greater to come from continuous research and development in quality, creator of confidence.
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Joliet, Illinois

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2 MINUTE "REFRESHER COURSE" ON TRIPOLY

Sequestration: In hard water Sodium Tripoly Phosphate forms soluble complexes, which are non-reactive, with certain hardness elements. Complexes with iron are colorless. Tripoly also dissolves hardness precipitants already formed.

Inhibition: Even smaller amounts of Tripoly are required to inhibit precipitation of hardness elements than to sequester them. EXAMPLE: A few ppm usually prevents scale formation in pipe lines, boilers, etc. In inhibition, a little Tripoly goes a long way.

Peptization-Dispersion: Tripoly deflocculates and forms stable colloidal suspensions with certain finely divided insoluble substances. EXAMPLES: In paper manufacture, .1% Tripoly makes near solid clay coating slurries easier to pump. In textiles, Tripoly disperses dyes, fillers and sizes more evenly through the fabrics. In oil drilling, Tripoly lowers the mud viscosity to speed drilling. In laundering, it yields a whiter wash by dispersing soils and preventing redeposition on fabrics and equipment.

Synergism: When Tripoly is used as a builder with synthetic detergents or soaps, the resultant detergency is greater than the combined effect of these items acting independently. Tripoly puts the detergent to work immediately instead of wearing itself out in curd formation. For further information write for our data sheet and/or test sample.

Volume XXXV, No. 1—January, 1959

SOAP AND CHEMICAL SPECIALTIES

Cover photo: Donald M. King, head of Masury-Young Co., Boston floor cleaning and maintenance materials firm, was elected president of the Chemical Specialties Manufacturers Assn. at its 45th annual meeting in New York last month. Mr. King served as first vice-president last year. Earlier he was second vice-president of CSMA and has served on the organization's board of governors.

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DOW | What's new in cleaning agents?

Every chemical advancement for industry is discovered twice. It's discovered first by the research chemist who develops it. It's discovered a second time by you when it begins to pay dividends as a part of your products or processes. The time that lapses between these two discoveries is a measure of how your products and profits stand competitively. New developments are born overnight. New uses for familiar products come just as fast. This is the first in a series of chemical news notes to help you keep your products and profits up to date.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

Route to:

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SOAP MAKERS DISSOLVE HIGH COST HARD WATER PROBLEMS WITH VERSENE 100

Soaps can compete for sales on an even footing with syndets these days, thanks to the "conditioning" they get from chelating agents like Versene® 100. Soap formulations containing Versene 100 can deliver cleaning performance equal to syndets in water of 7 grain hardness —at the same cost!

Originally, the high cost of using chelating agents to keep a soap formulation competitive in the wash prevented the formulation from appearing on the grocer's shelf. A startling reduction in the cost of chelating agents in recent years, however, has eliminated this barrier.

A maker of liquid soaps and shampoos explained the spot he was in before chelating agents came to the rescue. He said: "Metal ions were a real problem in our products. Shampoos clouded on standing. And our liquid soaps were fouling dispensers. It was tough to explain that we weren't making 'dirty soap'."

For many manufacturers, chelating agents like Versene 100 have made a remarkable difference. Liquid soaps flow through dispensers without leaving the messy footprints of metal ions. Flake soaps pack the same cleaning power in moderately hard water as syndets. Shampoos keep the luster of sales appeal.

Continuously studying and developing the use of chelating agents in the soap industry, Dow produces a family of chelating agents under the Versene trademark. Versene 100, Versene Powder and Versene Flake are different forms of the tetrasodium salt of EDTA, the most effective and versatile of the commercially available chelating agents. From Dow, soap makers are finding the latest answers to their metal ion problems—from eliminating the chilling stage in production to keeping the consumer from giving the product the cold shoulder at the point of sale.

DOW CHEMICALS

NEW AND NOTEWORTHY

METHYLENE CHLORIDE

Outstanding economy in the formulation of many aerosols. High solvent action, excellent vapor pressure depressant properties.

POLYOLS

Humectant and solvent properties of Dow Polyols put them on the preferred list for soap and syndet makers. Read about them in this new folder.

CAUSTIC:
12 big reasons why you never have to wait

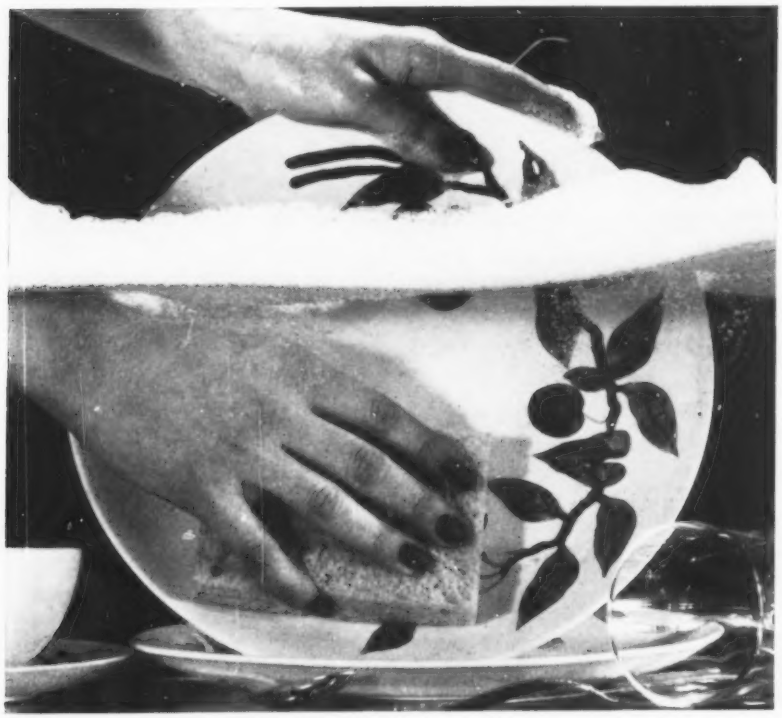
Caustic soda has long been the acknowledged barometer of the chemical industry. And for the soap or syndet maker who doesn't have it when he needs it . . . the storm warnings go up.

"That's why we go to Dow for caustic," one manufacturer said. "Fact is, I never give caustic supply a thought any more. I don't have to. With Dow, it's always there when we need it."

This taken-for-granted supply situation is possible because of painstaking care in production planning at Dow's 4 producing plants, and clockwork delivery system from Dow's 8 coast-to-coast supply terminals . . . 12 big reasons why you never have to wait.

For an industry that can't operate without caustic, Dow supplies this basic ingredient in six forms—solid, flake, ¼" flake, ground flake, 50% solution and 73% solution. And whether a customer orders his caustic in a handy drum or in one of the specially designed tank cars in the Dow fleet, he's sure of getting it on time and in peak condition.

The attitude of Dow customers is pretty well summed up by a plant superintendent who stated, paradoxically: "Caustic is so important to us we order it from Dow and forget about it". The complete story of Dow caustic makes interesting reading for a production manager. And it's available now—in Dow's new handbook, "Dow Caustic Soda", considered by many to be the most complete, authoritative, and best illustrated book on caustic soda available today.



Happy hands and happier sales resulted when soap manufacturers used Versene 100 to control unruly metal ions.

DOWICIDE:
Chemical "packaging" protects soaps, syndets

Product discoloration from mold and mildew has caused many a soap or syndet maker a prematurely gray head.

As one sales manager put it, "If our packages sit on the shelf a little too long, they might as well sit there forever—we have to give them away anyway".

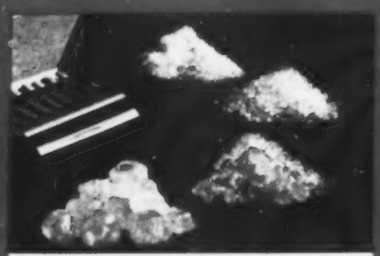
Liquid starches and floor waxes are now being fortified for longer shelf life with Dowicide® preservatives. These remarkable preservatives protect boxes, wrappers--and the contents of bottles and cans—from fungus, rot and mildew.

"Dowicide products saved us trouble all the way from warehousing to the store shelf", reports the president of a liquid floor wax firm.

Dowicide products used as odorless germicides in many disinfectants have become "invisible packaging" against deterioration of product packages—and profits. From the Dow staff, manufacturers are getting new answers to "long standing" problems.

★ ★ ★ ★

If you aren't already profiting from these and other Dow chemicals, discover how you can. We suggest you write for complete information to Chemicals Sales Department 970ER-1, THE DOW CHEMICAL COMPANY, *Midland, Michigan.*



PARADOW®

One way to be sure of uniform paradichlorobenzene—with improved crystal structure, less fragmentation and greater clarity—is to order Paradow.

DOWANOL®

New 52-page book describes Dowanol line, widest range of glycol ethers, viscosities, boiling points, includes both ethylene and propylene series.

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Raw Materials • Extractive Agents
Purifiers • Aromatics • Solvents
Coagulants • Preservatives • Chelating Agents • Ion Exchange Resins • Alkalies
Ethylene and Propylene Oxide

THE DOW CHEMICAL COMPANY
Midland, Michigan

DOW

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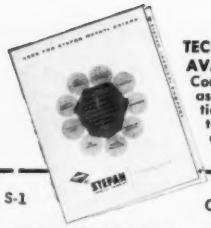
OFFER IMPORTANT ADVANTAGES AS INTERMEDIATES OR ADDITIVES FOR A WIDE RANGE OF APPLICATIONS

Methyl esters offer a number of important advantages over fatty acids as intermediates. In most cases methyl esters are more reactive . . . offering cost savings from that standpoint. Further, they are more fluid and considerably less corrosive than fatty acids. Many reactions involving methyl esters can be run in plain steel, eliminating the need for costly storage tanks and reactors.

The new Stepan plant at Millsdale, Illinois (near Joliet) is now producing in quantity a wide range of methyl esters of high purity and excellent uniformity. We would be pleased to furnish you with working samples, technical bulletin and prices.



TECHNICAL BROCHURE AVAILABLE

Contains specifications as well as suggested uses, formulations, test results and laboratory procedures for methyl esters in a wide variety of applications.

S-1 Gentlemen: Please send

☐ Technical Brochure ☐ Working Sample of

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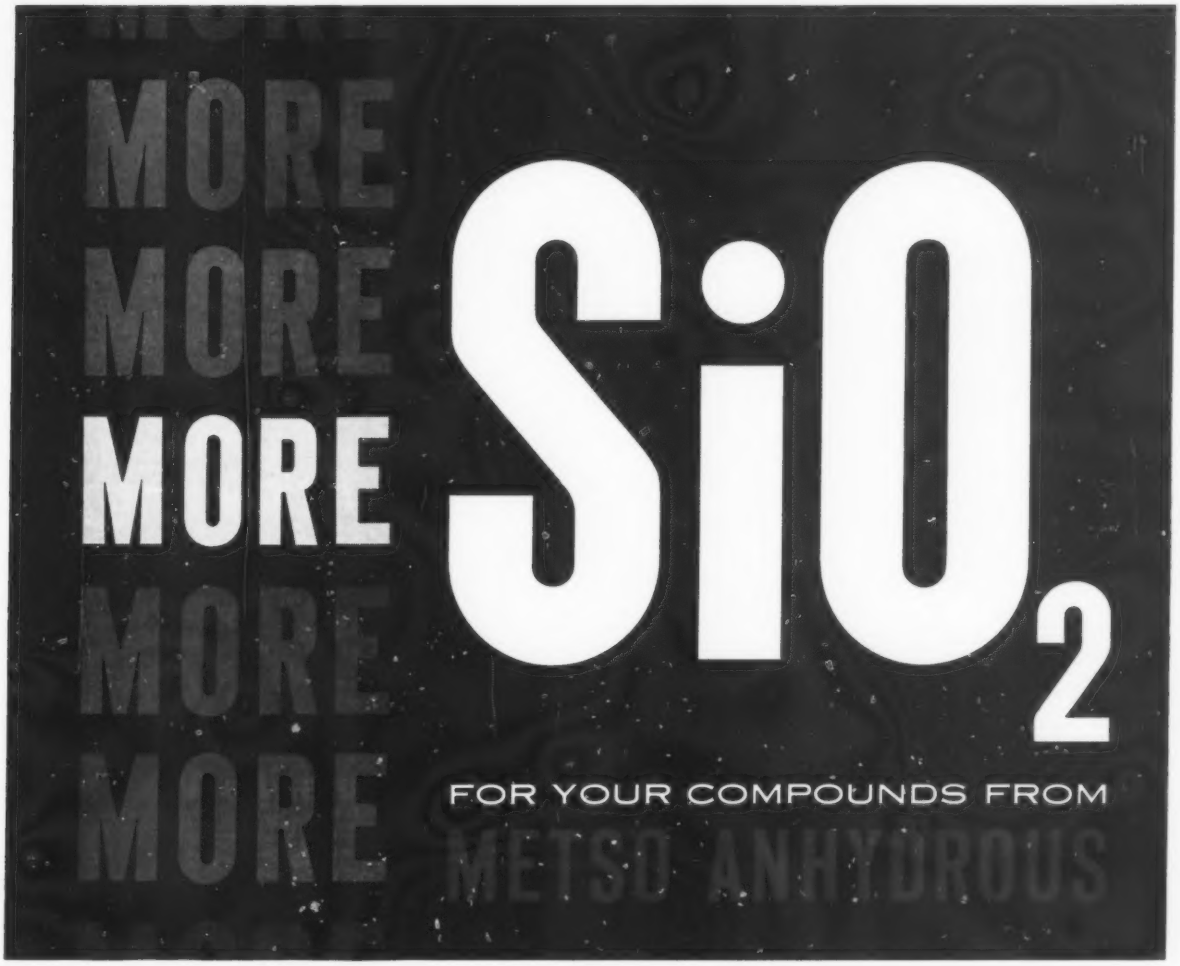
AMERICA'S MOST COMPLETE LINE OF SURFACTANTS



Metso Anhydrous is the sodium metasilicate that contains the highest soluble silica (SiO_2) content. Here is a true anhydrous metasilicate because impurities such as sodium carbonate are low.

You will find Metso Anhydrous with its higher SiO_2 content, superior in cleaning action, i.e., wetting out the dirt, emulsifying oily materials and deflocculating loosened particles so that they are dispersed through the solution. Metso's soluble silica in conjunction with the alkali prevents loosened soil from reaggregating and collecting on the cleaned surface. Soft metals such as zinc, tin, and aluminum are readily attacked by solutions of practically every alkali except the silicates. Because of its soluble silica content, Metso Anhydrous has specific protective action upon such metals.

We shall be glad to tell you more about these and other advantages of Metso Anhydrous for your detergent formulations. Have you received our information file "PQ Soluble Silicates for Detergent Formulations"? Return the convenient coupon today.

PQ SOLUBLE SILICATES

Associates: *Philadelphia Quartz Co. of Calif., Berkeley & Los Angeles, Calif.; Tacoma, Wash.; National Silicates Limited, Toronto, Canada*
Distributors in over 65 cities

PQ PLANTS: Anderson, Ind.; Baltimore, Md.; Buffalo, N.Y.; Chester, Pa.; Jeffersonville, Ind.; Kansas City, Kansas; Rahway, N.J.; St. Louis, Mo.; Utica, Ill.

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- ☐ Send us folder "PQ Soluble Silicates for Detergent Formulations"
- ☐ Send us sample of Metso Anhydrous
- ☐ Send us information for using PQ Soluble Silicates in the following compound_____

For private brand resale buyers of waxes and kindred products

...Your Quality Guide

WATER EMULSION WAXES

Each of Candy's floor waxes are all-around top quality for certain traffic conditions. They impart the finest protection and beauty to floors for which best suited.

CANDY'S SUPREME (standard)
BRIGHT BEAUTY®
CANDY'S SUPREME Special WR
SUPER CAND-DOX®
CAND-DOX® #CS
CANDI-WAX #6000

All Candy's products are available for private brand resale and are sold only through distributors except for experimental accounts in Chicago essential to research.

Beauty and Durability

Initial appearance is important, but for a waxed surface to remain beautiful, it must be durable. Durability depends not only on resistance to abrasion of traffic, but even more so on resistance to discoloring marks. Durability should be measured by how long the waxed surface maintains a nice appearance before complete removal and re-waxing is required.

Anti-Slip

Anti-slip, or reasonable safety underfoot, does not mean that the qualities of beauty and protection need be sacrificed. The proper balance—a wax film which is not excessively slippery, yet which is not tacky and does not collect dirt readily—gives the performance that answers the foremost original reason for use of a floor wax...beauty and protection.

Water Resistance

Frequent damp mopping or wet traffic can make water resistance very important. Over-doing this quality when no problem exists out of the ordinary, simply increases the difficulty of complete removal or applying multiple coats. Removability must be considered as important as water-resistance under most normal conditions.

Solid Content

The percentage of solid content is not nearly as important as the quality of the solids. Good quality indicates 12% of solids as the answer for most well planned maintenance programs. Two applications of 12% gives better results than one of 18%. "Washed out" floors and other special problems maintain better when more concentrated waxes are used. Over-waxing and resultant greater difficulty in removal for periodic maintenance may do more harm than good.

Carnauba Wax

The most important features of a good wax...all-around quality of performance...are built around Carnauba Wax. When refined and compounded with other additives and scientifically controlled in manufacture, Carnauba alone imparts the beauty and protection that makes the use of floor waxes both profitable and possible. Make-shift manufacture or over-emphasis on any one given wax feature should be avoided and proper care taken to provide for most satisfactory performance.

Other HIGHEST QUALITY products of CANDY & COMPANY, Inc.

CANDI-COAT 1000, WATER RESIN EMULSION

As a floor coating for use under specific conditions of continued maintenance on certain types of floors this water resin emulsion has none of the faults associated with coatings of this type. It is the finest product in its class produced up to this time.

Bright Beauty WAX REMOVER & all-purpose SURFACE CLEANER

For removal of water-emulsion waxes from any floor without harmful effects. It is the perfect maintenance program wax remover and all-purpose surface cleaner. Pleasant odor, crystal clear color and thorough cleaning action with all types of equipment. Unaffected by hard freezing. Furnished ready for resale or in concentrated form for local packaging...nothing but water to buy or mix in.

Bright Beauty CREAM FURNITURE POLISH

A cream furniture polish that spreads easily, polishes without excessive effort to a deep impressive lustre. Permits *repeated repolishing* with a dry cloth, thus saving many re-applications. A very economical polish of the very highest quality.

Bright Beauty PASTE WAX

Properly blended and refined from excellent quality solids and solvents that produce the best drying time and evaporation. Easy to handle, having "creamy" consistency and stability that lasts throughout storage and usage life.

Bright Beauty LIQUID (spirit) PREPARED WAXES

A complete line of spirit dissolved waxes that meet a wide variety of demands for durability, color and types of usages. Each acts as a "dry cleaner" to keep surfaces waxed protected with a superb coating necessary for many applications such as wood and certain other types of floors; for bars, wallpaper, etc.

Bright Beauty GLASS POLISH & CLEANER and SILVER POLISH

As a glass cleaner (pink color) it applies evenly with little effort, wipes off easily with negligible "powdering" and produces an undeniable "feel" of cleanliness to glass. As a cleaner of silver, it polishes to a high lustre *without* abrasion and can even correct the abuses of scratchy "quick-polish" inferior products.

Bright Beauty DANCE FLOOR WAX

Does not "ball-up" and gather dirt that impregnates floors with hard spots difficult to remove...free from dusty effects. Its protective quality adds more "floor-years" to expensive ballroom floors.

Bright Beauty Heavy Duty PASTE CLEANER

Cleans and *scours* more effectively and quicker than most scouring powders. Depending on application, it can clean to perfection even painted walls to provide a suitable repainting surface. 100% active, free from excessive abrasive qualities, it frees almost every surface from all foreign matter.

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Now you can have dramatic, colorful labeling of your private brand name on all 55, 35, 30, 20 & 15 *gal.* drums and 5 *gal.* pails. This added service is accomplished right in our plant...your inspection invited...or write for details.

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EST. 1891

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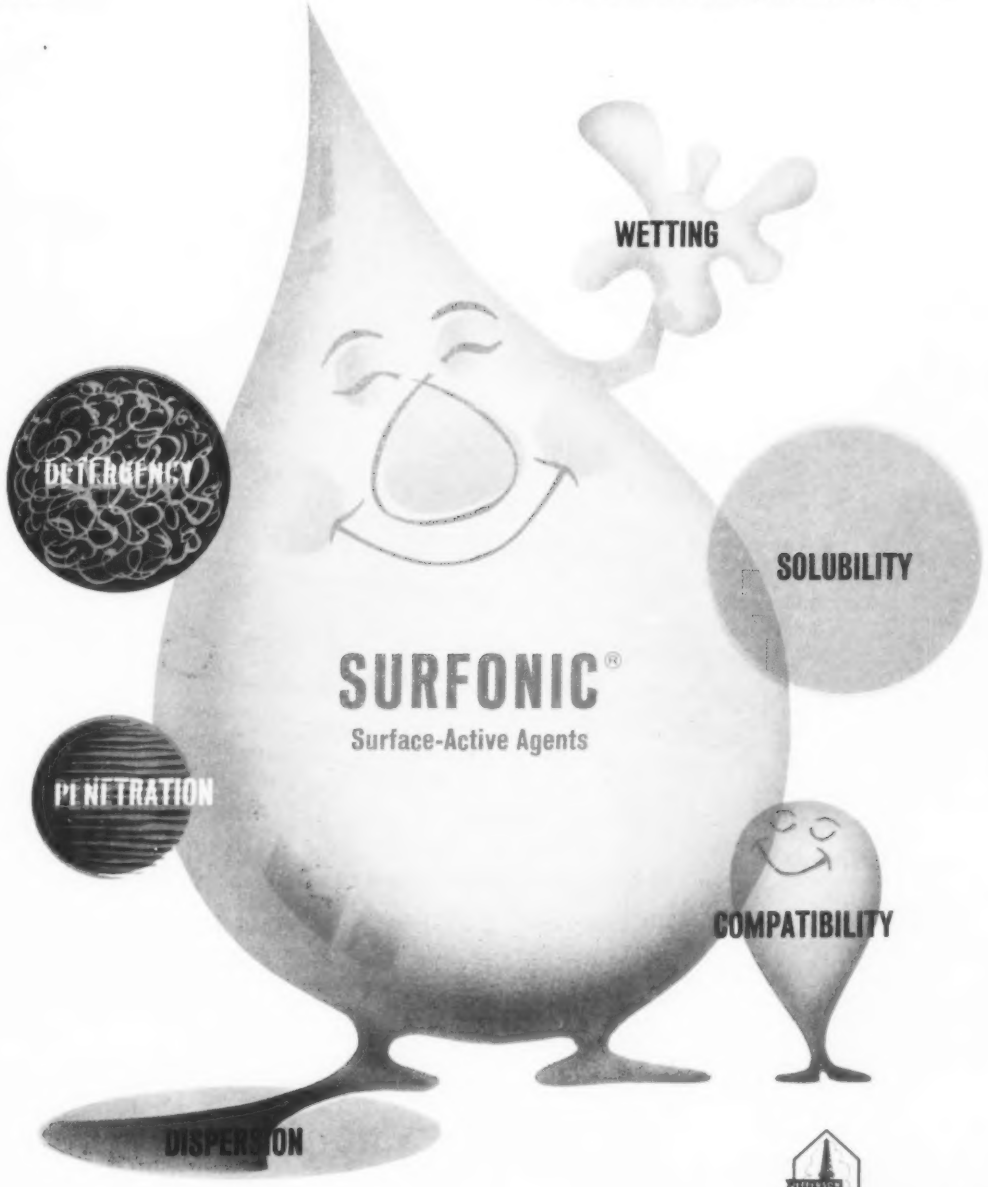
MEET A GOOD MIXER . . .

Jefferson Chemical Company's SURFONIC® surface-active agents are nonionic adducts of nonylphenol or tridecyl alcohol and ethylene oxide, designed to give you broad modification of liquid surface and interfacial tensions. With these surfactants you can effect and control a wide range of properties essential to formulation and to end product application.

Whatever your formulating problem — from concrete to cosmetics — Jefferson Chemical's versatile SURFONIC surface-active agents can give you the miscibility and wetting properties most favorable to your product or process. A comprehensive technical bulletin, "SURFONIC Surface-Active Agents," is available from Jefferson Chemical Company, 1121 Walker Avenue, Houston 2, Texas.



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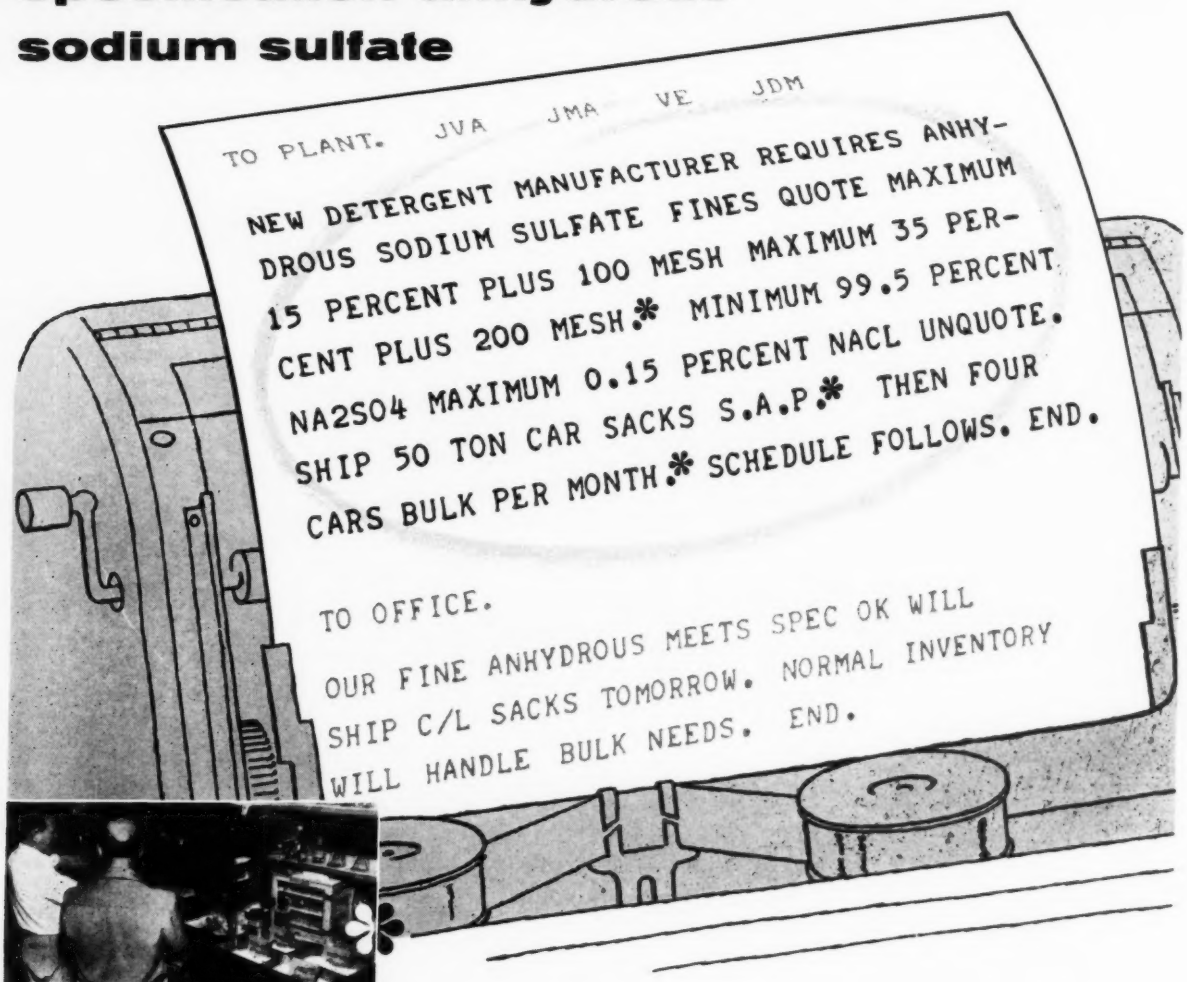
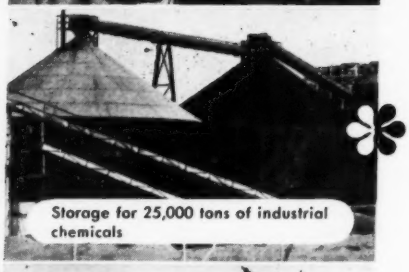
Polyethylene Glycols • Nonyl Phenol • SURFONIC® Surface-Active Agents
Ethylene Carbonate and Propylene Carbonate • Caustic Potash • Caustic Soda
Soda Ash • Sodium Bicarbonate

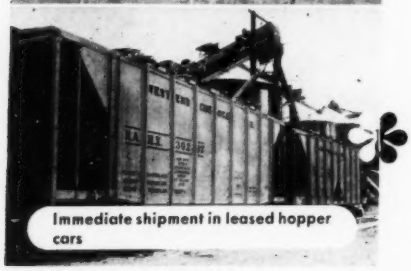
109

West End "fills the order" for special specification anhydrous sodium sulfate


TO PLANT. JVA JMA VE JDM
NEW DETERGENT MANUFACTURER REQUIRES ANHYDROUS SODIUM SULFATE FINES QUOTE MAXIMUM 15 PERCENT PLUS 100 MESH MAXIMUM 35 PERCENT PLUS 200 MESH.* MINIMUM 99.5 PERCENT NA2SO4 MAXIMUM 0.15 PERCENT NACL UNQUOTE. SHIP 50 TON CAR SACKS S.A.P.* THEN FOUR CARS BULK PER MONTH.* SCHEDULE FOLLOWS. END.
TO OFFICE.
OUR FINE ANHYDROUS MEETS SPEC OK WILL SHIP C/L SACKS TOMORROW. NORMAL INVENTORY WILL HANDLE BULK NEEDS. END.

Constant control for uniformly high quality


Storage for 25,000 tons of industrial chemicals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Through a system of instant communication between sales office and plant and the efficient coordination of technical, production and shipping activities, West End can make prompt commitments to meet particular specifications and delivery requirements.

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If your liquid detergent employs an alkyl aryl sulfonate...

Krystallex SX*

...WILL VERY SUBSTANTIALLY LOWER YOUR FORMULATION COST!

■ Here is a purer form of dodecyl benzene sulfonic acid which is characterized by its very low free sulfuric acid content. It can be easily neutralized with a wide choice of alkalies and amines to produce a very light oil-or-water soluble sulfonate — free from the usual objectionable odors.

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*Active sulfonic acid 92.0 min. Free sulfuric acid 1.5 max. Free oil 1.5 max. Moisture 5.0 max.

SOME OF THE EXPANDING KRYSTALLEX SERIES...

Krystallex S-83. specially purified sodium dodecylbenzene sulfonate. Clear and odorless liquid. Excellent base for clear liquid formulations such as liquid dishwashing detergents.

Krystallex S. A conventional dodecylbenzene sulfonic acid.

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Krystallex LA. A 100% active non-ionic fatty acid alkanolamide manufactured for use as a foam stabilizer.

Krystallex CD. An unmodified coconut fatty acid alkanolamide useful for thickening, etc.

Krystallex CDA. A modified coconut fatty acid alkanolamide used in scrub soap concentrates. Has outstanding resistance to hard water.

Krystallex C. sodium lauryl sulfate—characterized by its uniform high viscosity—excellent base for creme shampoos.

Krystallex A. A sodium lauryl sulfate with a very low salt content and low viscosity.

Krystallex T. A triethanolamine lauryl sulfate. High activity, low cloud point, very light color and color stability toward light.

Krystallex S-26. A new detergent manufactured exclusively for shampoo use.

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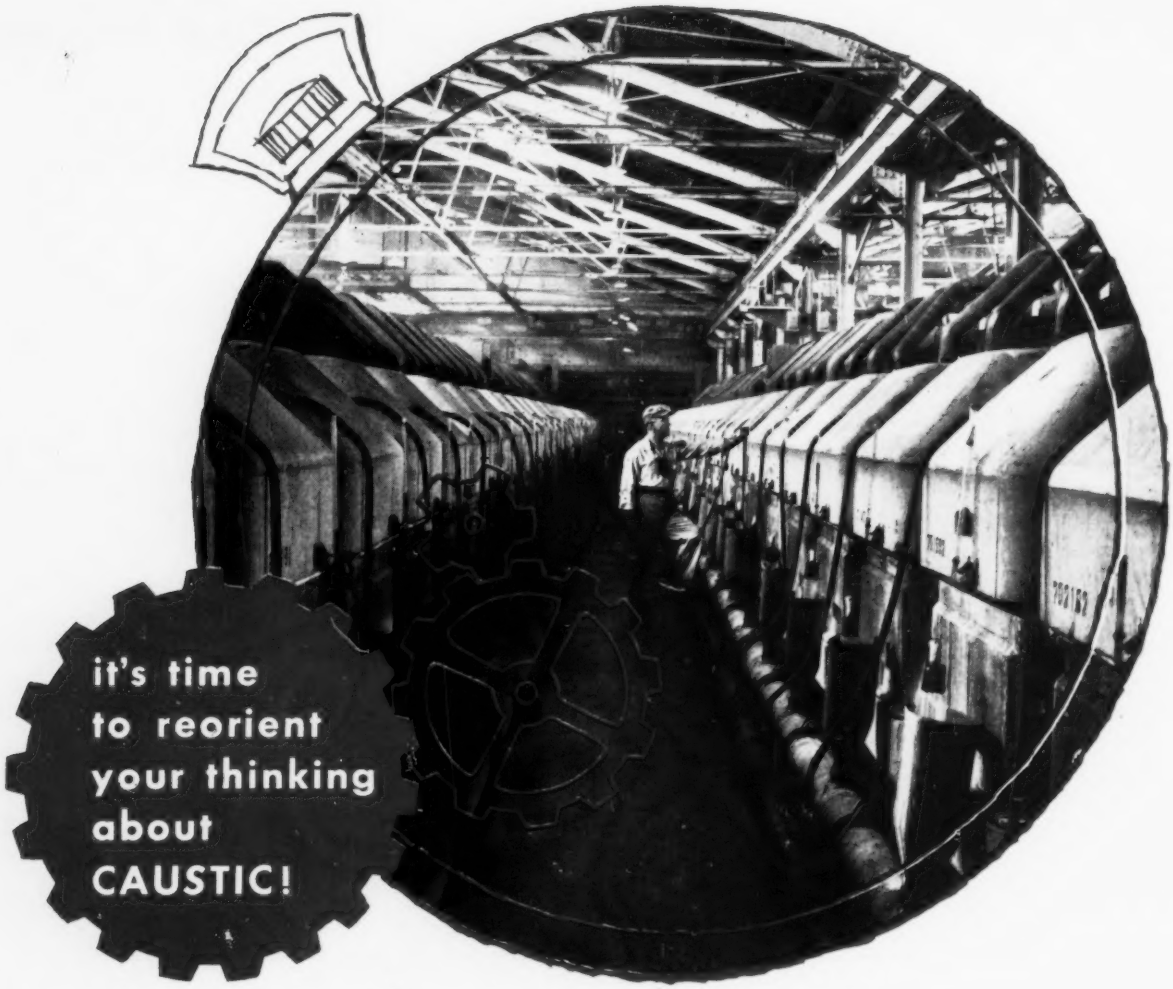

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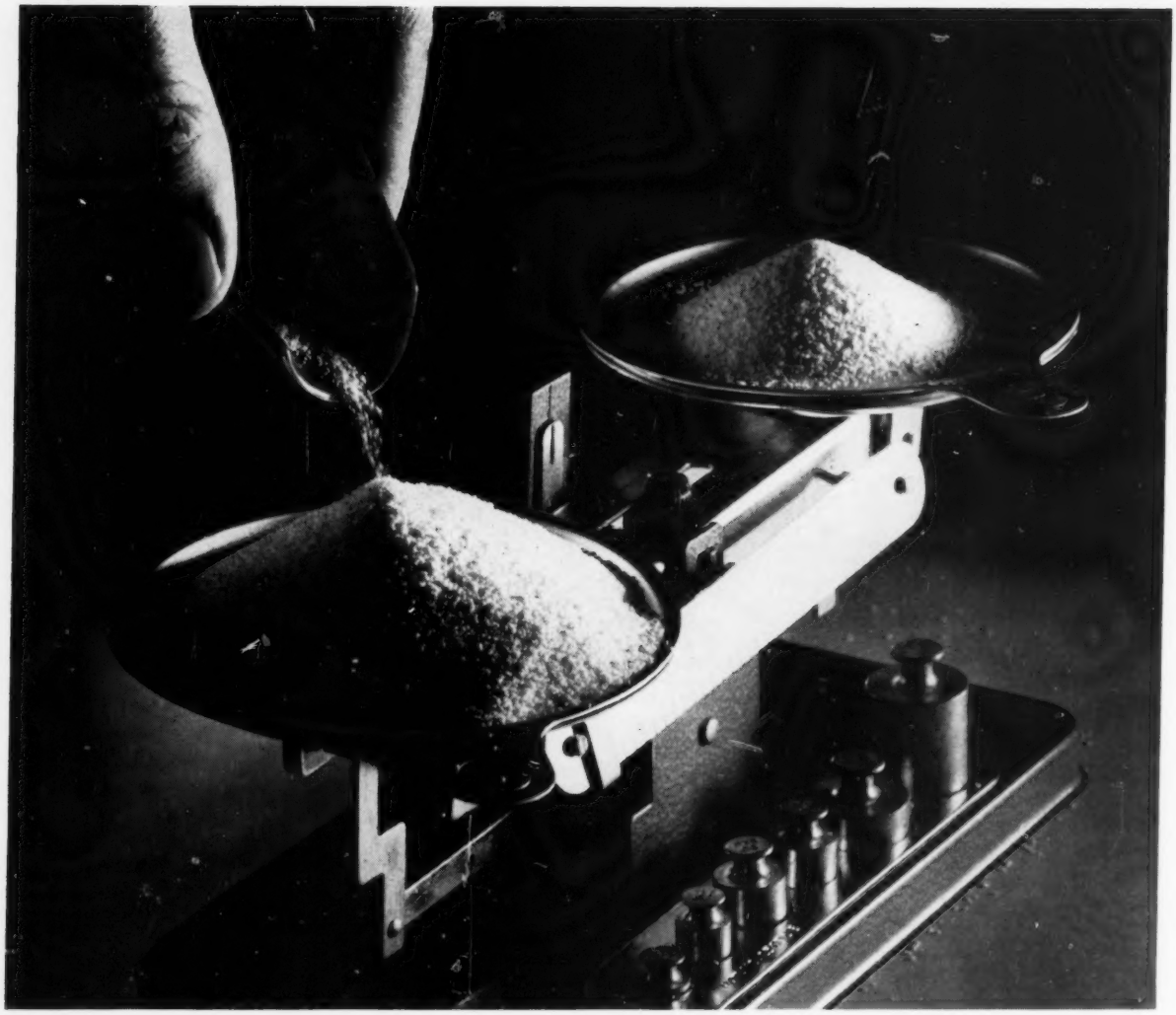

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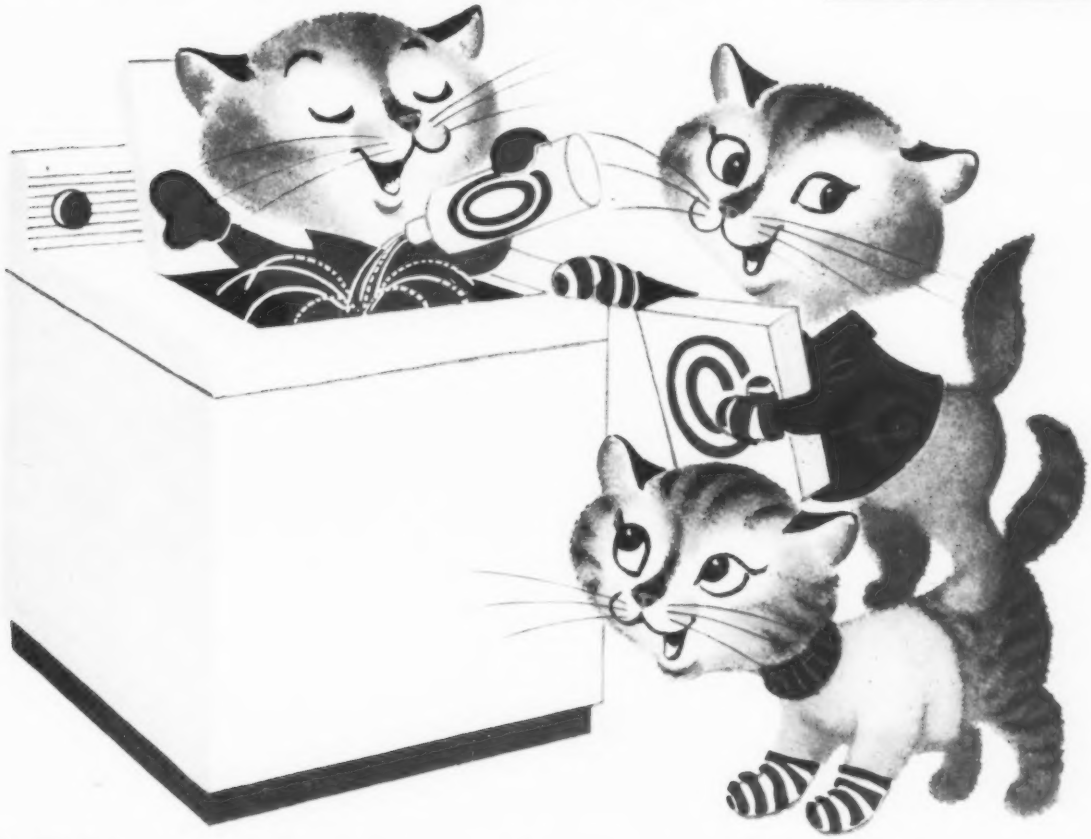

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NEOLENE 400

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May we suggest that you call or write today for samples and more information about Neolene 400. **CONTINENTAL OIL COMPANY,** PETROCHEMICAL DEPARTMENT

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A complete analysis of Cotton Detergency

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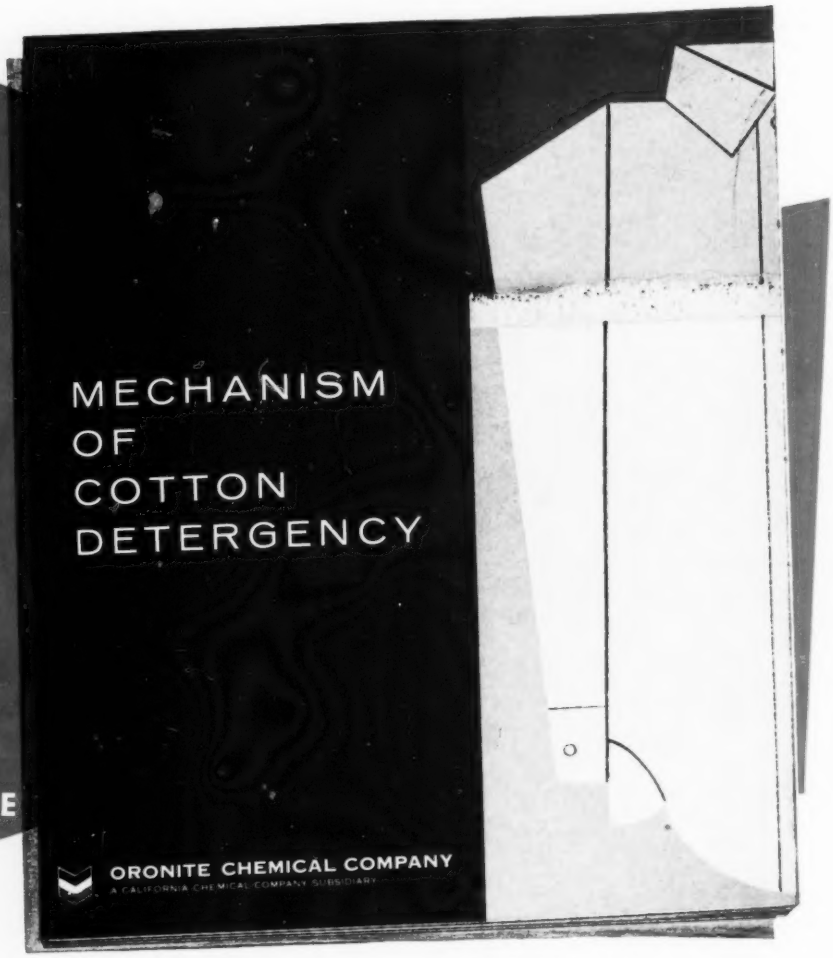

This 16-page technical booklet explains the mechanism by which surfactants work in the detergency process. The three basic steps—(1) wetting of the soil and fabric by detergent solution (2) removal of soil from the surface of the fabric (3) suspension of the soil in the dispersing medium—are described in comprehensive detail.

"Mechanism of Cotton Detergency" is another product of Oronite research, another reason why Oronite, producers of Oronite Alkane*, continues its leadership in developing and marketing highest quality detergent raw materials.

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After Closing

Buckingham Elects Greene

Allan Greene was elected president upon the recent incorporation of Buckingham Wax Co.,

Irving Wexler

Inc., Long Island City, N. Y., it was announced by Irving Wexler, chairman of the board of directors. Joining the company as assistant general manager in 1951, Mr. Greene directs all of Buckingham's operations in his new position,

Mr. Wexler, president of the company until his election as chairman upon its incorporation, founded Buckingham in 1936. Active for more than 36 years in the sanitary supply industry, he had been treasurer and sales manager of Windsor Wax Co., as well as part owner of the company.

Before joining Buckingham, Mr. Greene was an accountant and had served as a naval officer. He attended Miami University and is a graduate of its school of accounting and business administration.

—★—

Greenway Heads Lever Ltd.

Harry Greenway succeeded C. A. Massey Dec. 31, 1958, as president of Lever Brothers, Ltd., Toronto, Canada. Mr. Massey retired after 32 years service with the company.

English-born and a Canadian citizen by choice, Mr. Greenway joined Unilever in 1933 as an executive trainee. Two years later, he went to Holland and later became a marketing assistant to the Dutch Lever Co. In 1951 he joined the Canadian firm as marketing director and was advanced to a vice-president in 1956.

—★—

Parsons in New Plant

Parsons Ammonia Co. recently moved into a newly-constructed 30,000 square foot plant in Clifton, N.J., Philip C. Ingham, president, announced in December. The one-story building is of modern design and has its own railroad spur.

Parsons is manufacturing and shipping its "Sudsy" household cleaner from the new plant to grocery warehouses and stores in the east. The product, first bottled in 1876, is a patented detergent ammonia formula introduced in its present form in 1950. There are five other Parsons plants throughout the country.

—★—

Reefer-Galler Moves

Reefer-Galler, Inc., has moved its offices from 225 Fifth Ave., to 521 Fifth Ave., New York 17, it was announced recently by M. S. Galler, president. The company is a leader in the development of moth control products and manufactures insecticides and other aerosol packaged products. New telephone number of the company is Murray Hill 2-1011.

—★—

White King Sales Meeting

Sales plans for 1959 were discussed at the annual sales meeting of White King Soap Co., Los Angeles, held last month in that city. More than 50 company executives from 11 western states attended the session and discussed the introduction of new advertising and sales promotion, product tie-in plans, and details of media and promotions for the first quarter of 1959.

—★—

Krylon Advances Kayser

Elmore E. Kayser has been advanced to vice-president in charge of advertising and promotion for Krylon, Inc., Norristown, Pa. Mr. Kayser had been adver-

Elmore E. Kayser

tising and promotion manager for the company for the past five years. During this time sales of Krylon spray enamels were reported to have increased by more than tenfold.

—★—

Babbitt Purchases Antell

B. T. Babbitt, Inc., New York, has purchased for cash the assets, trade name, and trade marks of Charles Antell, Inc., Baltimore, and Charles Antell, Ltd., of Canada, manufacturers of shampoos and other products for hair care. The purchase agreement, signed last month by Marshall S. Lachner, Babbitt president, and Julius J. Rosen, president of Charles Antell, had a closing date of Dec. 31, 1958.

The Antell firm was organized in 1950 and is noted for its spectacular radio and television advertising campaigns for its lanolin hair products. Babbitt will continue to manufacture and market the Antell line of "Formula 9" hair conditioners, liquid shampoos, hair sprays, and "Vita Yums" and "Vita Pops" vitamin candy.

In charge of the new Charles Antell division as a vice-president of Babbitt is A. N. LaBelle. Formerly director of sales for Lambert-Hudnut toiletry and cosmetic division of Warner-Lambert Pharmaceutical Co., Morris Plains, N.J., Mr. LaBelle has been in this field for many years and has held various executive positions with Colgate-Palmolive Co., New York.

In commenting on the acquisition, Mr. Lachner noted that it was another step in the company's diversification program toward its "goal of 60 to 70 million dollars in gross sales in the next five years."

—★—

Silicone Guide for 1959

Dow Corning Corp., Midland, Mich., has just published the 1959 edition of its guide to "Dow Corning Silicones." The 16-page brochure carries information on the silicone products of widest interest, and their properties and applications. Each item bears a reference number enabling the potential buyer to obtain full and pertinent details.

Silicones are used in hair sprays, polishes, in textile auxiliaries, and many other specialties where water repellency, soil resistance, temperature stability and chemical inertness are important factors. Dow Corning markets a few silicone based consumer specialties such as "Sight Savers," treated tissues to clean lenses, and "Shoe Saver," a water-repellent and protective treatment for leather articles.

—★—

Heyden Names Aude V. P.

Robert M. Aude has been appointed vice-president and general manager of the Heyden Chemical Division of Heyden Newport Chemical Corp., New York, it was announced in December by S. Askin, president.

With the company since 1956, Mr. Aude was named director of sales planning and coordination in 1956. Before joining Heyden Newport, he was associated with Monsanto Chemical Co., St. Louis.

Amchem Names Torchiana

Joseph Torchiana was appointed recently as sales manager of lawn and garden products of

Joseph Torchiana

the agricultural chemicals division of Amchem Products, Inc., Ambler, Pa., formerly American Chemical Paint Co. He continues as advertising manager of the division, a position he has held since joining the company in 1947. Previously Mr. Torchiana was advertising manager of the Delaware River Ferry Co., Chester, Pa.

—★—

P&G Elects Cole V. P.

H. Schuyler Cole has been elected vice-president of the paper products division of Procter and Gamble Co., Cincinnati, O., it was announced last month by Howard Morgens, president.

Previously vice-president of the toilet goods division since 1956, Mr. Cole also has been responsible for the management of the paper products division since 1957.

Also announced was the appointment of Charles M. Fulgraf as manager of the toilet goods division. He was associate manager of the division since early 1957.

—★—

Harris Joins Treplow

C. P. Harris has joined the staff of Treplow Products, Inc., Paterson, N. J., as director of research. Formerly research director of Apex Chemical Co., Elizabeth, N. J., Dr. Harris has been associated with E. I. du Pont de Nemours and Co., Wilmington, Del., Tower Manufacturing Co., Newark, N. J., Fletcher Chemical Co., South River, N. J., and Sandoz Chemical Works, Fairlawn, N. J. He was also a consulting chemical engineer in New York for 16 years.

—★—

Fine Organics Relocates

The executive and sales offices of Fine Organics, Inc., have been moved from 211 East 19th St., New York, to the firm's plant at 205-225 Main St., Lodi, N. J. The company, founded in 1939, manufactures solvents, cleaners, deicing compounds, deodorants and disinfectants, and other chemical specialties.

According to Nicholas M. Molnar, president, the relocation was made for closer coordination between the executive, sales, research, product planning, and manufacturing divisions of the firm.

—★—

Maintenance Show Set

Highlighted by more than 400 exhibits and a broadly revised conference program, the 10th annual Plant Maintenance & Engineering Show will be held at the Public Auditorium, Cleveland, Jan. 26-29.

Exhibits valued at more than $7,500,000 are expected to attract 20,000 visitors from a wide variety of industries in this country and 30 foreign nations as well. According to Clapp & Poliak, Inc., New York, producers of the show, some 10,000 different products will be displayed and more than 3,000 engineers and maintenance specialists will be on hand to answer visitors' questions.

Among the features of this year's program will be such topics as a preventive maintenance program for control instruments, maintenance by outside contractors, special materials for maintenance, maintenance in small plants, maintenance in large plants and industrial engineering in maintenance. In all, there will be 51 meetings, with speakers from 19 states and Canada.

van Ameringen-Polak & Schwarz Merge

VAN Ameringen-Haebler, Inc., New York, and Polak & Schwarz N. V., Zaandam, Holland, have merged their operations as of Dec. 31, 1958, it was announced last month by A. L. van Ameringen, chairman of van Ameringen, and C. C. Brummer, managing director of Polak & Schwarz. The two companies have become divisions of a parent organization, International Flavors & Fragrances, Inc., New York.

A. L. van Ameringen

C. C. Brummer

International now has wholly-owned manufacturing subsidiaries in 15 countries and supplies, on a world-wide basis, fragrance materials for soaps, cosmetics, perfumes and aerosol products, and flavors for the food, beverage, drug, and other industries. It was pointed out that the combined facilities of the two firms provide overseas producers, based in the United States or abroad, with materials manufactured locally.

Recent developments at the two organizations include the completion of a $1.5 million expansion of van Ameringen-Haebler's manufacturing and research operations at Union Beach, N. J. The 55-year old van Ameringen firm is currently producing 2.5 million pounds of perfume materials annually.

Polak & Schwarz began operations 70 years ago in Holland, later expanded to Belgium, France, and England, and today has manufacturing facilities in 15 countries with more than 100 agents throughout the world.

Commenting on the merger, Mr. van Ameringen noted that the two organizations have been complementary rather than competitive in their operations with respect to products, processes, research, and geographical location of plant facilities. He pointed out that his firm has devoted much of its efforts to aromatics and fragrances while Polak & Schwarz has concentrated much of its work on aromatics and flavors. Both, he stated, "have established reputations for pioneering work in chemical research and for utilizing modern production techniques."

Officers of International Flavors & Fragrances include Mr. van Ameringen, chairman of the board; Charles P. Walker, president; Mr. Brummer, executive vice-president; and Adolph Schwarz and Waldo F. Reis, vice-presidents. Mr. Walker and Mr. Reis had held similar positions with van Ameringen-Haebler and Mr. Schwarz was a managing director of P. & S.

Plant of van Ameringen-Haebler at Union Beach, N. J.

Plant of Polak & Schwarz, N. V., Zaandam, Holland.

Markem Chemical Div.

A chemical division has been established by Markem Machine Co., Keene, N. H., manufacturers

John G. Powers

of marking machines, it was announced last month by David F. Putnam, president. John G. Powers has been named manager of the new unit, with Bernard Toomey and Douglas Treat assisting him.

The division has full responsibility for sales and service of Markem machines to the chemical, cosmetic, drug and pharmaceutical, and paint and varnish industries. Markem machines are used in these industries for identifying and decorating plastic, glass, and metal containers, and as box markers and label printers.

—★—

Lever "Breeze" Promotion

Consumers are being offered a free regular size box of "Breeze" detergent by Lever Brothers Co., New York, as the initial 1959 promotion for the product. By mailing a box top from any size "Breeze" package, consumers receive a coupon redeemable for the regular size package.

A promotion held last April is credited by Lever officials for the detergent's second consecutive year of increased sales volume which is reported at percentage gains more than double those achieved by the total high sudsing powder market.

Merchandise for the promotion is being sold to the trade this month, with consumer advertising in national magazines, network radio and television, and local newspapers during January and February.

—★—

SAACI Nominates Officers

The nominating committee of the Salesmen's Association of the American Chemical Industry, Inc., New York, under the chairmanship of Warren F. Schumacher of J. T. Baker Chemical Co. has selected candidates for the 1959 officers and directors. Included on the slate are: president, James E. Spencer, Harshaw Chemical Co.; vice-president, George W. Poland, Jr., E. M. Sergent Pulp & Chemical Co.; treasurer, Preston F. Tinsley, Westvaco Chlor-Alkali division of Food Machinery & Chemical Corp.; and secretary, Stewart Cowell, J. T. Baker Chemical Co.

Nominated as replacements on the board of directors for 1959 and 1960 are: James M. Fergusson, Sumner Chemical Co.; John M. Glaze, Hooker Chemical Corp.; Paul E. McCoy, American Potash & Chemical Corp.; Frank Reynolds, Publicker Industries, Inc.; William Wishnick, Witco Chemical Co.; and Walter A. Farley, Chas. L. Huisking & Co.

Dr. Irving Levenstein, left, and Arthur J. Cohane of Leberco Laboratories, Roselle Park, N. J., are shown breaking ground for new addition to firm's pharmacological laboratory. Completely air conditioned building is being constructed to extend Leberco's facilities for pharmacological and toxicological studies for the chemical specialties, cosmetic, drug and food industries.

YPO Elects de Elorza

John de Elorza, president of Old Empire, Inc., Newark, N. J., contract packagers was elected re-

John de Elorza

cently to membership in the Young Presidents' Organization, New York. With nearly 1,200 members, the organization consists of presidents of companies doing over $1 million business annually who have attained their presidency before they are 40 years old.

Mr. de Elorza has designed and developed many cosmetic and aerosol specialties. His firm is a private brand packager and manufacturer of aerosol perfumes, drugs, and cosmetics.

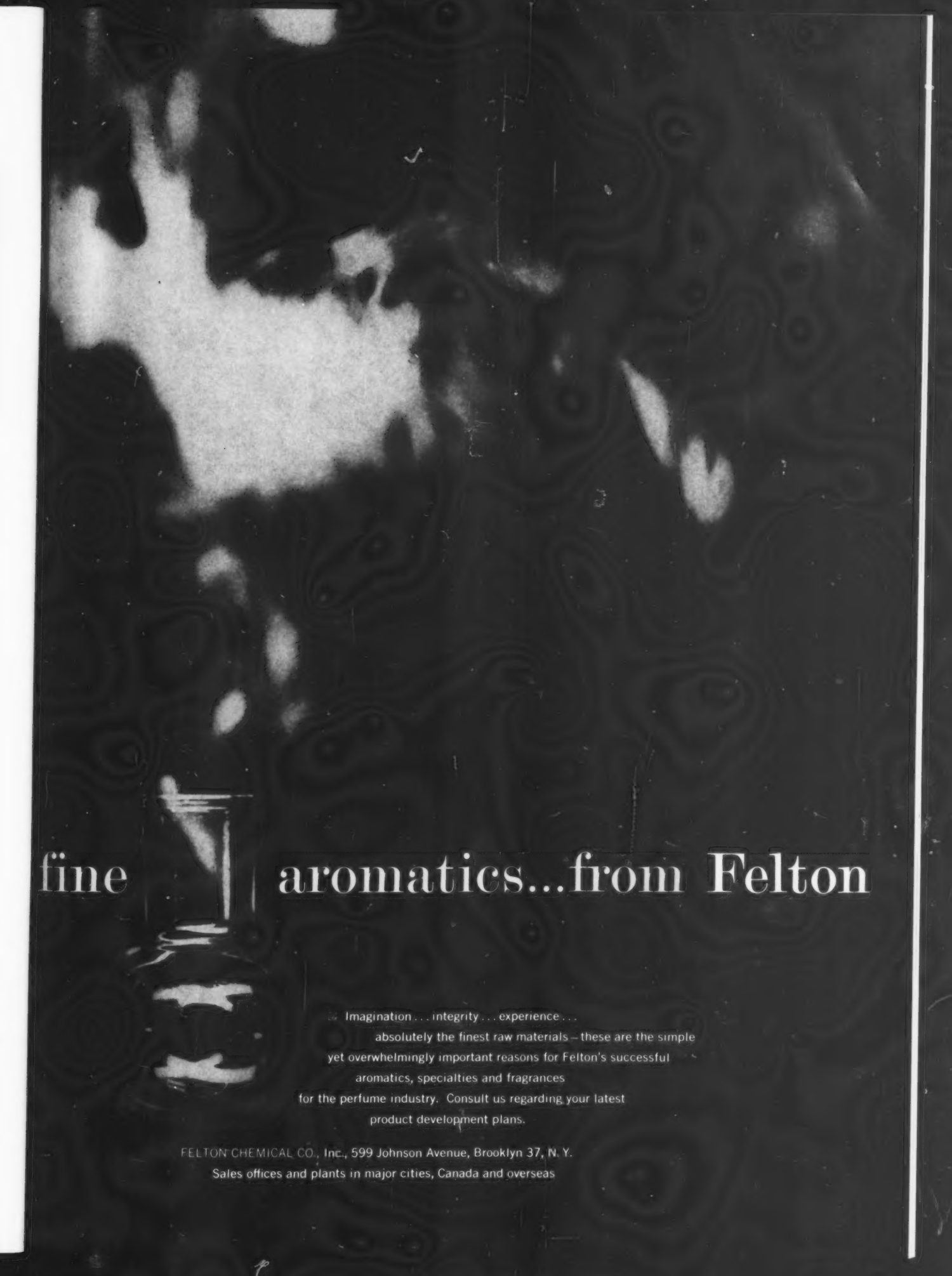
—★—

CAIA Elects Officers

The Chemical and Allied Industries Association of Michigan, Detroit, elected its officers for 1959 at a recent meeting. The new officers are: president, Dan Bradley, Shell Chemical Co.; vice-president, Russell Haeger, Dow Chemical Co.; secretary, Milford R. Polley, Mallard, Inc.; and treasurer, William F. Harlton, Detroit Veterinary Supply Co.

Elected to the executive committee were: John Lonsberg, Monsanto Chemical Co.; Robert Warmbold, American Can Co.; and Wayne Luff, Mallinckrodt Chemical Works, 1958 president of the association.

A monthly dinner and business meeting is scheduled for Jan. 26 at the Detroit Leland Hotel.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☐ 2. **Organic Solvents**, completely revised second edition by Riddick and Toops. 560 pages including tables of physical properties of 254 solvents. Covers physical properties and methods of purification. Price: $10.00.

☐ 3. **Surface Active Agents and Detergents**, by Schwartz-Perry. Two volumes. Volume I: 590 pages, 51 illus., 4 tables. Covers processes for synthesizing and manufacturing surface active agents, physical chemistry of surface active agents and practical applications of surface active agents. Price: $13.50. Volume II: Approximately 860 pages, approximately 26 illus. and tables. Covers processing for synthesizing and manufacturing surfactants, special function surfactants and compositions, the physical and colloidal chemistry of surfactants and practical applications of surfactants. Price: $19.50.

☐ 4. **Detergent Evaluation and Testing**, by Jay C. Harris. 220 pages, 26 illus., 15 tables. A critical selection of methods and procedures for the testing of detergents. Price: $4.50.

☐ 5. **Organic Insecticides**, by R. L. Metcalf. 402 pages, 7 illus., 70 tables. Covers most organic insecticides, their chemistry and their mode of action. Price: $10.00.

☐ 6. **Advances in Pest Control Research**, edited by R. L. Metcalf. Volume I: 522 pages, 11 illus., 13 tables. Covers the most recent advances in all phases of the applied science of pest control. Price $12.50. (Volume II in preparation)

☐ 7. **Modern Chemical Specialties**, by Milton Lesser. 514 pages, 22 illus. Covers formulation, properties and uses of some fifty types of household, industrial and automotive chemical specialties. Price: $7.25.

☐ 8. **Handbook of Cosmetic Materials**, by Greenberg-Lester. 467 pages. Covers the properties, uses and toxic and dermatological actions of over 1,000 materials selected in response to a questionnaire sent to cosmetic manufacturers. Includes a chapter on the skin by Howard W. Haggard, Director, Applied Physiology Laboratory, Yale University. Price: $13.50

☐ 9. **Soap Manufacture**, by Davidson et al, in two volumes. Volume I: 537 pages, 66 illus., 118 tables. Covers the history of the soap industry, theoretical principles of soap manufacture, raw materials of soap manufacture and the fatty raw materials. Price: $13.50. (Volume II in preparation)

☐ 10. **Cosmetics: Science and Technology**, edited by Edward Sagarin. 1453 pages, 138 illus., 107 tables. Covers origin, development of cosmetic science and discusses individual products such as hand creams, suntan preparations, skin lighteners, shaving soaps and creams, nail polishes and removers, deodorants, aerosol cosmetics and many other cosmetic and toiletry products. Price: $27.50.

☐ 11. **Industrial Oil and Fat Products**, by Alton E. Bailey. 991 pages, 164 illus. 133 tables. Covers the nature of fats and oils, their composition and structure; raw materials; industrial utilization. Price: $18.00.

☐ 12. **Fatty Acids**, by Klare S. Markley. 678 pages, 81 illus., 163 tables. The chemistry and physical properties of fats and waxes. Price: $14.50.

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Because of its processing, HD-90 is purer: 90% minimum active, Akyl Aryl Sulfonate, which does a kind of cleaning on many hard surfaces that no other material can do at any concentration! That's *maximum quality level!*

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Crystamet 2040 is the name of the new Cowles sodium metasilicate pentahydrate that resists caking, mixes quickly and remains dust free.

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Many users select caustic potash, rather than lower cost caustic soda, because it saponifies fats and grease more readily, and—most important—provides extra efficiency.

Since it is more reactive, the products made from it are also generally more reactive—more soluble, more effective. In fact, many powerful cleaners—including some of the popular heavy-duty liquid detergents—are based on products produced from caustic potash.

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Calcium Chloride • Sodium Bicarbonate • Ammonium Choride
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Para-dichlorobenzene • Methyl Chloride • Cleaning Compounds
Hydrogen Peroxide • Aluminum Chloride • Ammonium Bicarbonate
Soda Ash • Carbon Tetrachloride • Mutual Chromium Chemicals
Monochlorobenzene • Ortho-dichlorobenzene • Snowflake® Crystals

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Samples of Technical Grade Caustic Potash
☐ Flake ☐ Small Flake ☐ Solid
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Samples of Mercury Cell Caustic Potash
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☐ Caustic Potash fact book

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DM-19

The ULTRAWETS wet, penetrate, clean, emulsify.

Inside, outside, all around the building... here's the handyman to know

It's like having extra help on the cleaning force when you put Atlantic ULTRAWETS to work on factory and institutional clean-up jobs.

ULTRAWET 60L is a superior liquid alkyl aryl sulfonate that works well in hot or cold water, hard or soft water. It increases the efficiency of floor scrubbing, heavy-duty liquids and hard surface cleaners as well as liquid sanitizers . . . emulsifies grease, speeds soil removal, keeps solids in uniform suspension and leaves no soap scum.

Leading compounders find that ULTRAWET 60L provides uniform high quality and flexibility in the formulation of all-purpose liquid cleaners. In scrub soap formulations it allows the use of a higher phosphate content with resulting clear solutions. Furthermore, it provides excellent controlled pH of alkalinity.

The ULTRAWET product advantages add up to sales advantages for you. Atlantic ULTRAWETS are available in flake, bead and liquid form. For even greater economy, deliveries can be made in bulk shipments.

For more information on our cost-cutting ULTRAWETS, write, call or wire The Atlantic Refining Company at the nearest office listed.

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. . . in brief

as the editor sees it . . .

DETERGENT SALES . . . The decline in the over-all tonnage sales of detergents and soaps for the first nine months of 1958, compared with the same 1957 period, was a surprisingly small 1.7 per cent. The 1957 report showed the highest figures in soap industry history. Dollarwise, sales in 1958 were up 3.4 per cent over 1957, again to break the industry's record. Actually, detergent sales tonnage was up slightly over 1957, the loss in over-all figures coming from a further decline in soap sales of 8.7 per cent.

These figures, all based on the Soap Association sales survey, were more or less as anticipated in the industry,—a marked and continued decline in soap sales, detergents as a class holding their own or gaining slightly, and liquid detergents continuing their upward climb with a gain of 29.1 per cent in tonnage and 31.2 per cent in dollars. In the face of declining sales in numerous industries in 1958, detergents pretty much held their own. We interpret this as indicating that the long range trend is still upward, a trend which we do not believe is likely to change in the foreseeable future.

* * * * *

CARELESSNESS . . . Following the school fire in Chicago last month which claimed so many lives of small children, members of the police arson squad stated that they were inclined to blame sloppy housekeeping habits and carelessness as the cause of fire. As an example of carelessness, a member of the squad found a bottle of cleaning fluid on top of a gas heater in the school basement boiler room. Although the fluid was not a factor in the rapid spread of the blaze, it well could have been if of the flammable type.

We dare say that this bottle of cleaning fluid bore warnings on its label to keep away from flame and heat. Yet it was stored on a gas heater. Had it been the known cause of the blaze, we can well imagine the newspapers screaming "Cleaning fluid causes fatal blaze." Not human carelessness, but the cleaning fluid was to blame! The label may have carried adequate warning. But who reads labels? No matter how careful a manufacturer is to label his products correctly, always there will be some who will misuse them. Human carelessness is a difficult thing to correct by labels or legislation.

* * * * *

FIRE HAZARD . . . Another feature of the Chicago school fire which has come to roost on the front door step of the chemical specialties manufacturer is the excitement caused by reports that the film of floor wax on the floors was a factor in the rapid spread of the fire. Ridiculous on its face, this is typical of some of the thinking which accompanies the hysteria associated with a tragedy such as the Chicago fire. An investigation by the fire authorities proved the report to be groundless and it was thought that the idea had been laid to rest where it belonged.

Suddenly out of the blue in the Chicago papers appeared large advertisements by a leading floor wax manufacturer urging people to remove the danger of fire by stripping wax films from their floors. Naturally, the manufacturer offered his special wax remover for the purpose. And once again, the subject of fire hazard from floor wax films was reopened officially. If a leading manufacturer had any ideas of this sort, maybe there was something to it.

We sincerely believe that a further investigation will end up exactly where it did before. But in the meantime, a headache is involved for every floor wax producer selling in the Chicago area, not to mention trouble which may arise

HOLDING THE MIRROR TO MOTHER NATURE!

Specialties FROM HAARMANN & REIMER

NEROFLOR EXTRA HAARMANN & REIMER

A hitherto unknown aromatic chemical with a marked similarity to Oil Neroli Bigarade and Orange Blossom.

Its pronounced floral note makes it a valuable addition to many other floral perfumes — Jasmin, Gardenia, Tuberose and Sweet Pea.

Underlying the floral note is a somewhat heavy Indolic note which is characteristic of so many Natural Floral Oils.

Neroflor Extra has excellent fixing properties.

Neroflor Extra will not irritate the skin or discolor, so is admirable for use in compounds for cosmetics or in soap.

NEROFLOR EXTRA HAARMANN & REIMER
NEROFLOR SAVON HAARMANN & REIMER

Write for pamphlet giving suggested formulae.

SPECIALTIES from LA BELLE FRANCE!

By J. and E. SOZIO, Grasse

ROSE HV: Compounded rose base processed by extraction in presence of flowers other than Rose de Mai.

ROSE HM: The same base and process, with Rose de Mai.

CHENIRAX: Soluble product of extraction of Mousse de Chene and Gum Styrax.

CHENAMBROL: Soluble product of extraction of Mousse de Chene and Ciste. Available also decolorized.

DISTIRIS: Reconstitution from fractions of natural oils other than Iris Butter, distilled over Iris Roots.

DISTIRONE: Reconstitution of Absolute Iris (Irone) odor in a mixture subsequently distilled over Orris Roots.

You are invited to send for samples of any specialties that interest you.

VERONA

VERONA AROMATICS

A DIVISION OF VERONA-PHARMA CHEMICAL CORP.

Plant and Main Office:

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1210 ROSEDALE AVENUE, CHICAGO, ILL.

in other areas through the effects of official zealots. If some wax people harbor thoughts of competitive throat slitting, it would not be surprising.

* * * * *

CERTIFICATION . . . Product certification and the issuance of "qualified product lists" by trade associations or others have always been as full of holes as a rusty sieve. Nobody can make any such certification system work nor does such certification have direct bearing on the quality of the product involved. We make this statement advisedly after thirty years or more of careful observation of attempts to set up "qualified product lists." In our book, such lists must of necessity be meaningless and obviously subject to all sorts of chicanery.

Current efforts of the American Hotel Association in setting up "qualified product lists," we feel, are no exception. No matter what tests may be involved, the trustworthiness of the supplier is still paramount. Who is to say that the merchandise as delivered is the same as the sample for testing? And is it not reasonable to believe that the annual cost of testing will be added to the price which AHA members pay? And does not AHA realize that eventually the whole thing could assume the aspects of a dangerous racket?

When the board of the Chemical Specialties Manufacturers Association at a recent meeting went on record as opposed to any and all product certification, we feel that they crystallized the feelings of reputable suppliers. No true need for any such certification exists, nor will it truly protect any buyer.

* * * * *

WAX FUND . . . The first seed was sowed at the meeting last month of the Wax and Floor Finishes Division of CSMA to establish a fund primarily for publicity purposes. The preliminary announcement did not go into details, but those are quite well known among manufacturers and distributors. Not only is the wax polish business in need of a drive to widen the use of its products, but it seems to be constantly called upon to battle adverse publicity. We particularly have in mind the claims of manufacturers of vinyl tile that they need no waxing and also the claims of automobile producers that the new acrylic finishes do not have to be waxed.

Technically, the Wax Division of CSMA has done a mighty good job for its members and for the industry as a whole over the years. Now, we believe that a continuing publicity drive could be very timely, could lay the foundation for selling more wax to more people both in industry and in the home. We feel the time is ripe. It is our hope that this first seed will be followed through in the near future.

* * * * *

AEROSOL EXHIBIT . . . The Aerosol Supermarket held in conjunction with the recent CSMA meeting in New York was one of the most ambitious and commendable undertakings ever staged under the auspices of this 45 year old Association. Some 8,000 aerosol packages of about 150 different types of products were displayed on racks simulating a supermarket. When the committee of seven or eight executives of member firms, who worked all night to set up the exhibit, had finished their job, it was a beautiful sight,—a real supermarket, all aerosols.

Too bad that the membership of CSMA as a whole never got to see the exhibit in its original set-up. The primary plan was to obtain publicity and for this purpose, some 100 editors of women's magazines, news columnists, and the trade press were invited to come and help themselves and learn about aerosols. They descended upon the exhibit like a pack of hungry wolves. In an hour, the place was devastated. With the saliva still dripping, they staggered out of the exhibit under their greedy loads. We felt ashamed that a group of editors could act as they did.

So when the hungry editors had left, the CSMA membership had a chance to view what remained. But the cream was off. And so we feel if another aerosol supermarket is ever held,—and it was a tremendous idea,—the greedy will be restricted to one package of a kind. The committee learned a dozen lessons from this first very successful exhibit. We hope there are more to come.

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Nacconol® NR Flake

You're always sure of 40% minimum active organic content in NACCONOL NR!

Light color and excellent wetting, foaming and detergent action never vary from batch to batch . . . no matter what warehouse it's shipped from, coast-to-coast.

Unfailing uniformity is the *extra value* you get *at no extra cost* in all fourteen forms of NACCONOL. Without spending a penny more you simplify your production and safeguard the consistent quality of your product.

We will gladly send you samples of NACCONOL NR or other forms of NACCONOL listed below and quote on your requirements. See for yourself what it means to deal with National Aniline . . . most experienced supplier of anionic synthetic organic detergents.

LIQUID Nacconol 60S Nacconol SL

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GRANULAR Nacconol MX Granular Nacconol MX Unimesh

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Atlanta Boston Charlotte Chattanooga Chicago Greensboro
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Allied Chemical

as the reader sees it . . .

Cover Comment

Editor:

As the reader sees what the editor sees . . .: "Package" . . . December 1958 issue.

100 per cent agreement. I also wonder if there is a good reason behind the change of packages or labels or whether some joker just has a brain storm and a yen.

Looking for the joker?

See the cover of the December issue of *Soap & Chemical Specialties*. Reason behind the change?—Happy New Year!

Helmut Melzer
Toledo, O.

Just in case any of our readers are in the dark over Mr. Melzer's somewhat enigmatic letter, we should point out that he's joshing us about what he considers an inconsistency. In our December issue we rapped, editorially, changes in packaging of specialties made without apparent reason. The front cover of the same issue of Soap was completely redesigned. In our defense, if one is needed, we would like to point out that the previous cover design was two years old and ready for a change and improvement. We felt the new cover design was a distinct improvement, and one more in keeping with modern magazine covers. The firsthand reaction of those who saw the new Soap cover at CSMA meeting in New York was universally favorable. Ed.

—★—

Missing Forms

Editor:

My copy of the December 1958 issue of *Soap & Chemical Specialties* is devoid of pages 67-98, and therefore I would appreciate receiving a complete copy.

E. S. Franzus,
Sanitek Products, Inc.
Los Angeles

—★—

Editor:

The December issue of *Soap & Chemical Specialties* has just reached us and we find that pages 99 to 130 inclusive are missing. As your spectrum of coverage increases, that specifically applying to a given interest necessarily decreases. We find it so. On pages 257-8, we find the trail end of an article ("Military Disinfectant") which continues from missing page 111. We would greatly appreciate the entire article.

James J. Nelson, owner
Kalusoff, Ltd.,
Springfield, Ill.

—★—

We have sent complete copies of the December issue to both Messrs. Franzus and Nelson. We will send complete copies to other readers whose December copies are missing forms. Ed.

—★—

"Finest Issue"

Editor:

You probably get the sense of feel, as I do, that when you pick up something you know it's good. That's the way I felt about the November issue of *Soap & Chemical Specialties*. When I glanced at it I knew that this was one of the best issues that I have ever seen.

After I studied it and read a couple of articles, I felt that it was the finest issue of *Soap* that I remember being published in a long time.

I certainly believe that the magazine is becoming much more valuable to the industry as time goes on. An issue such as that for November certainly proves my contention.

Melvin Fuld, president
Fuld Brothers, Inc.
Baltimore

—★—

Product Information

Editor:

As subscribers of long standing to your publication, we are taking the liberty of writing you asking you for advice and assistance.

We are the largest manufacturers of soap, disinfectants, insecticides, etc., in the state of Victoria, Australia. We are most anxious to make contact with an organization in the United States, which could advise us from time to time of new products or new formulations which have been received favorably by the American public. The same organization should be able to give us formulations of a specific product. We would prefer to operate on the

(*Turn to Page* 185

Cincinnati Boy Scouts soap down one of 36 buses they washed in a contest sponsored by the Cincinnati Transit Co., and B. T. Babbitt Co. and Hudson Pulp and Paper Corp., both of New York. The contest was held in connection with the "Ride Free on CTC" promotion which offers free rides in exchange for coupons obtained with the purchase of Babbitt and Hudson products. The scouts used Babbitt detergents and Hudson paper products in the 20 minute wash contest.

Kyro EO — A neutral nonionic synthetic detergent of the 100% alkyl-phenol ethylene oxide condensate type. A light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties offer excellent performance in liquid detergents, sanitizer detergents, self emulsifying solvents, laundry detergents, glass, textile and dairy cleaners, insecticides, and bottle washing compounds.

AMBER GRANULES — A neutral 88%, 42° titer-type soap of exceptional purity and uniformity. Well suited for the preparation of paste or gel-like products because of its high titer. Its granular form makes it ideal for powdered products. Excellent for the preparation of hand cleaners, paste cleaners, polishes, lubricants and coatings.

ORVUS WA PASTE. A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium alkyl sulphate. Excellent sudsing, wetting, dispersing and penetrating properties. Ideal for paste and liquid shampoos, bubble baths, liquid detergents, liquid car washes, liquid floor cleaners, insecticides, glass cleaners, rug and upholstery cleaners.

SEVEN SIGNPOSTS

to successful formulation from Procter & Gamble

ORVUS ES PASTE. A specially developed synthetic detergent whose active ingredient is mainly modified alkyl sulphate. Offers exceptional efficiency and stability over a wide range of operating conditions. Wetting, penetrating, sudsing, dispersing and emulsifying properties make it excellent for the preparation of liquid shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, car washes, emulsion cleaners.

IVORY BEADS — A medium titer, neutral white soap of exceptional purity and quality. Well suited for compounding products where a mild but effective soap is required—hand soaps, polishes, protective creams, dishwashing compounds and paper coatings.

ORVUS AB GRANULES — A neutral synthetic detergent, wetting and emulsifying agent of the 40% active sodium alkyl aryl sulphonate type. A white product that can be used effectively in the blending of bubble baths, car washes, dishwashing compounds, dairy cleaners, insecticides, laundry detergents, rug and upholstery cleaners.

ORVUS K LIQUID. A modified, highly concentrated ammonium lauryl sulphate—modified for increased sudsing and mildness. Exceptionally low cloud and pour points. Highly fluid and easy to handle. Ideal for clear liquid shampoos and liquid detergents where high foaming is required.

Procter & Gamble's Products Research Department will gladly supply you with information on how you can save time and money when you formulate with Procter & Gamble products. You can also get technical help in connection with their use by writing to:

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Detergents . . . Cleansers . . . Soaps . . .

The future of light duty synthetic detergents is bright indeed. Their growth and popularity is based on satisfying the housewife's demand for mildness, economy, ease and rapidity of use and billowing suds. Article on page 43.

Aerosols
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with its unique degerming and antiseptic action, was the key to increased sales and broadened markets *for all these products:*

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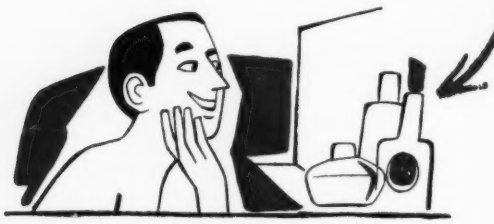

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Perhaps G-11 is exactly what *your* product needs to give it a competitive advantage in your markets. Sindar invites you to phone, wire or write for full information.

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Andrew K. Forthman
AASGP President

Ralph Hart
Presides at luncheon, Jan. 22

William H. Burkhart
Presides at luncheon, Jan. 21

Soap Industry Meeting

CHANGES in the soap and synthetic detergent industry brought about by new developments in raw materials and finished detergent products and their applications will be reviewed and evaluated at the 32nd annual meeting of the Association of American Soap & Glycerine Producers. Theme of the meeting, which is being held at the Waldorf-Astoria Hotel, New York, Tuesday, Wednesday and Thursday, Jan. 20, 21 and 22, is: "Soaps in Stereo—'59, A 2-way View of All That's New!"

Among the highlights of the three-day meeting will be a report on the international situation by Gen. Lucius D. Clay, chairman of the board of Continental Can Co. He will speak at the group luncheon on Wednesday, Jan. 21. Gen. Clay was military commander of the U. S. Zone in Berlin, following World War II.

Another luncheon speaker, John Dille, military editor of *Life* magazine, will discuss the "Race for Space" in a post luncheon address on Thursday, Jan. 22.

The day before the formal opening of the soap industry meeting, the Industrial Division and the Fatty Acid Division (Fatty Acid Producers Council) of AASGP hold simultaneously sessions, beginning the morning of Tuesday, Jan. 20 at 10:00 a.m. Earl Brenn, Huntington Laboratories, Inc., Huntington, Ind., chairman of the Industrial Division, will preside at a meeting of his group. In addition to a business meeting, which will elect officers for the following year, a report on the publicity activities of the division will be presented by Henry T. Rockwell of Jones, Brakeley & Rockwell, Inc., New York. Another feature of this first gathering of the Industrial Division will be a brainstorming ses-

John Dille
"Race for Space"

Roy W. Peet
AASGP Manager

Gen. Lucius D. Clay
"The International Situation"

J. A. Sloan
Glycerine Div. Chairman

George E. Hinds
"New Petrochemical Intermediates"

Carl Pacifico
"Fatty Alcohol Sulfates"

sion, with audience participation, conducted by Austin Marshall of Porter, Henry & Co.

Meanwhile, elsewhere in the hotel, the Fatty Acid Division will be meeting to hear committee reports and a report of its manager, E. Scott Pattison. Arthur R. Bethke, Darling & Co., Chicago, chairman of the division will preside. A feature of this meeting will be a discussion of "Gas Chromatography Demonstration — What It Means." Nathaniel Brenner, applications engineer with Perkin-Elmer Corp., Norwalk, Conn., will make the presentation. The concluding business of the session will be the election of officers.

Joint Luncheon

The combined Fatty Acid-Industrial Divisions luncheon following these sessions will be presided over by Mr. Bethke. Featured speaker will be R. D. Willemin, Sr., Merrill Lynch, Pierce, Fenner & Smith, Inc.; his subject: "Fats and Other Raw Materials—Outlook for 1959."

The joint luncheon, Jan. 20, will be followed in the afternoon by a joint symposium which will give the two divisions a glimpse of inside changes in the industry brought about by new materials or new applications of established materials. Presided over by Earl Brenn the symposium will deal with "Fatty Acids and Derivatives in Special-Purpose Soaps and Detergents." The contributions scheduled to make up the symposium include: "Industrial Soaps – What Can be Done With Soaps to Meet the Detergent Challenge," by W. M. Linfield, Soap Division of Armour & Co., Chicago; "Soap Detergency," by A. J. Gard, Dow Chemical Co., Midland, Mich.; "Fatty Alcohol Sulfates," by Carl Pacifico, American Alcolac Corp., Baltimore; "A New Family of Fatty-Based Amphoteric Surfactants," by A. James Freeman, Chemical Division, General Mills, Inc., Minneapolis; "Specialty Anionics of Fatty Origin," by F. W. Woodward, Applications Research and Technical Service, General Aniline & Film Corp., New York; and "Fatty Amide Detergents," by H. W. Zussman, Geigy Industrial Chemicals, Division of Geigy Chemical Corp., Yonkers, N. Y.

A. J. Gard
"Soap Detergency"

The events of Tuesday, Jan. 20, will be concluded by a reception and cocktail party at which *Soap and Chemical Specialties* will be host.

Meeting Formally Opens

On Wednesday morning, Jan. 21, at 9:30 the convention will be formally opened by the welcoming address of Andrew K. Forthmann, Los Angeles Soap Co., president of AASGP. Mr. Forthmann's address will be presented at the general session, presided over by F. B. Patton of Armour & Co. The presidential welcome will be followed by another symposium concerned with "The Outside Factors that Influence Product Improvement and Sales."

The "outside" aspect of the general theme will be developed in the following papers: "Textile

R. D. Stayner
"Guide for Better Detergents"

B. J. McKernan
"Progress in Metal Containers"

George M. Gantz
"Textile Trends Affecting Detergency"

A. James Freeman
"Amphoteric Surfactants"

Trends Affecting Detergency," by George M. Gantz and Hector C. Borghetty, General Aniline & Film Corp., New York; "Home Laundry and Dishwashing Equipment," by a representative of Whirlpool Corp., St. Joseph, Mich.; "Commercial Laundry Trends," by Edward B. Wintersteen, *Starchroom Laundry Journal and Cleaning Laundry World*, Reuben H. Donnelley Corp., New York; "Interior Design," by Melanie Kahane, Melanie Kahane Associates, New York; and "Advances in Sanitation Related to Health," by J. Lloyd Barron, Engineering and Sanitation Department, National Biscuit Co., and Albert J. Burner, Supervisor of Cleaning Standards, Port of New York Authority.

William H. Burkhart of Lever Brothers Co., New York, will preside at luncheon on Jan. 21, when General Clay will speak. Later that afternoon the Technical Advisory Committee's report to the membership will be presented. Henry V. Moss of Monsanto Chemical Co., St. Louis, Mo., committee chairman, will present a review of research reports. Final event on Wednesday's (Jan. 21) program is the annual Washable Cotton Fashion Show introducing the "Maid of Cotton for 1959."

A general session is slated for Thursday morning, Jan. 22, during which two panels will be devoted to discussions of the subject of "The Inside Factors that Make Better Products Possible." The general session, which gets under way at 9:30 a.m., is preceded by the convention breakfast for which *True Story* magazine is host.

The first panel on "Product Improvement Based on Ingredients" will have Richard B. Wearn of Colgate-Palmolive Co., Jersey City, N. J., as moderator. The following papers are scheduled to be presented: "New Petrochemical Intermediates for Detergents," by George E. Hinds, petrochemical department, Continental Oil Co., New York; "Design Guide for Better Detergents," by R. D. Stayner, detergent marketing department, Oronite Chemical Co.; "Improved Inorganic Builders," by J. R. Van Wazer, Monsanto Chemical Co.; "Bleaches and Brighteners," by Robert C. Ferris, Purex Corp., South Gate, Calif.; and "Bacteriostats for Soaps," by R. E. Vicklund, Sindar Corp., New York.

"Product Improvement Based on Packaging" is the topic of the second symposium in this session, for which Fred W. Schreiber, research center, Lever Brothers

F. B. Patton
Presides at general session

J. R. Van Wazer
"Improved Inorganic Builders"

R. E. Vicklund
"Bacteriostats for Soaps"

Co., Edgewater, N. J., is moderator. Scheduled as panelists are: J. M. Cullinan, meat and dairy packaging sales, Reynolds Metals Co., New York on "Present and Future Aluminum Packaging Applications"; J. Robert Akers, Union Carbide Plastics Co., New York, on "Tools for Imaginative Packaging"; B. J. McKernan, Continental Can Co., New York, on "Technical Progress in Metal Containers"; and Walter Landor, Walter Landor Associates, New York, on "Designing the 'Sales Emotional' Package."

Concurrently, in part, with the general session on Thursday, Jan. 22 the Glycerine Division (Glycerine Producers Association) will hold its meeting. Starting at 10:30 a.m. under the chairmanship of J. A. Sloan, Colgate-Palmolive Co., New York, the division will hear its manager's report, hold a business meeting, and elect officers.

Ralph Hart of Colgate will preside at luncheon on Thursday, Jan. 22, when John Dille of *Life* Magazine will be heard on "The Race for Space" and the Glycerine Research Awards will be presented. After the luncheon session the association's annual business meeting will be held. This will be followed by a board of directors meeting.

The Glycerine Division will reconvene after luncheon at 2:30 with J. A. Sloan, division chairman, presiding. E. Scott Pattison, manager of the association's Glycerine and Fatty Acid Divisions will be moderator for a symposium entitled "Time of Transition for Alkyd Resins." The following contributions will be presented: "Alkyds in Transition," by Herman J. Lanson, U. S. Vehicle & Chemical Co., St. Louis; "Effect of Chemical Constitution on Properties of Alkyd Resins," by Edward G. Bobalek, Case Institute of Technology, Cleveland; "Water Thinned Resins—Where They Stand," by Marvin W. Formo, Archer-Daniels-Midland Co., Minneapolis; "Amino Alkyds—Their Future Depends on You," by J. N. Butler, Monsanto Chemical Co.; "Epoxy-Alkyd Modifications," by T. Mika, Shell Development Co., New York; "Trimellitic Anhydride, a New Alkyd Raw Material," by James R. Eiszner, Amoco Chemicals, Inc., Chicago; and "Research Needs that Lie Ahead," by J. Scott Long, Paint Research Institute, University of Louisville, Louisville, Ky.

A social feature, the reception and cocktail party and banquet conclude this year's meeting, Thursday, Jan. 22. The reception and cocktail party for which raw material suppliers are hosts for the first time, begins at 6:30 p.m. The banquet in the grand ballroom is scheduled for 8:00 p.m. The entertainment is provided by N.B.C.

Brillo Merger Charges Dropped

CHARGES against Brillo manufacturing Co., Brooklyn, N. Y. were dismissed for failure of proof last month by a hearing examiner of the Federal Trade Commission. Brillo had been charged with alleged violation of the anti-merger law, section 7 of the Clayton Act, by its acquisition of a competitor, Williams Co., London, O., in July 1955.

In a previous decision, Examiner Robert L. Piper had granted Brillo's motion to dismiss the FTC complaint of May 22, 1956 as to the household market but denied it as to the industrial market, which were the two relevant markets involved. This decision was later reversed by the Commission and remanded to the examiner for further proceedings.

The FTC disagreed with the examiner's ruling that the acquisition automatically lessened competition in that it increased substantially Brillo's share of the industrial steel wool market from 29 per cent to 47 per cent. Other factors which must be considered, the FTC held, include the general competitive situation in the industry, the number of competitors, and the degree of concentration prevailing in the industry.

In the household steel wool market the Commission disagreed with the examiner's view that the acquisition could not have lessened competition since the two firms were not previously in competition. In 1954 Brillo's share of the market was over 45 per cent and Williams' share was 3/10 of one per cent. Other factors to be considered in this area, the FTC stated, were other relevant market information of record, including post-acquisition production and marketing data.

Applying these criteria in his decision last month, the hearing examiner found that although Brillo is the first place producer in the industrial steel wool field, it is not the "dominant" producer as the FTC complaint alleged. Brillo was also found not to have exercised price leadership, depressed prices unduly, tried to keep markets for new uses of steel wool to itself, or used different pricing practices than competitors on government-bid business, as counsel supporting the complaint had maintained. The examiner further found that entry into the industrial steel wool market is relatively easy, that there are seven producers in the field, the same as before the acquisition, and that comptition is just as keen, if not keener, than before the acquisition.

Answering the FTC counsel's contention that the acquisition enabled Brillo to save prepaid freight costs to midwestern customers thus reducing prices to lessen competition, the examiner stated that although price reductions would benefit the public and be hard on weak competitors, it was not the purpose of the anti-trust laws to insulate weak competitors from the rigors of hard and fair competition.

Turning to the household steel wool market, the examiner

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Because hand washing procedures are generally used for the things washed with light duty detergents, such products must be mild to human skin and must not harm material being washed. *Lever Brothers Co. photograph*

Anionic Surfactants in

Light Duty Detergents

By Dr. W. M. Bright and L. F. McKenney,*
Lever Brothers Co.
New York

THE earliest "light duty" anionic detergents were the ultra-thin soap flakes and soap beads that were first marketed over 50 years ago for washing lightly-soiled garments made of silk and other delicate fabrics. These were premium products, whose existence and common use made possible, about 25 years ago, the introduction of the first synthetic anionic surface active agents in the form of competitive light duty granular detergents.

These products were free-flowing, granular powders containing about 40 per cent of a fatty-derived synthetic surface active agent with sodium sulfate and moisture as the remainder of the formulation. The sodium salts of lauryl sulfate, and of sulfated coconut monoglyceride were used in the U. S., while fatty acyl methyl taurates and isethionates were employed in Europe. After World War II tetrapropylene benzene sulfonate from petroleum sources was used, and to a very large extent displaced the fatty-based compounds.

Without alkaline constituents these detergents formed neutral washing solutions, essentially unaffected by water hardness. They were recommended for washing silks, woolens, crystal, cut glass, and fine china. Because hand washing procedures are generally used for such things, the washing products must be mild to human skin and must not harm the materials being washed. These then are "light duty" detergents made specifically for a particular type of cleaning job. Products built with alkaline materials and hence giving an alkaline washing solution are designed for a different soil removing chore and are called "heavy duty"

*Paper presented during 45th annual meeting, Chemical Specialties Manufacturers Assn., New York, Dec. 9, 1958.

Lever Brothers Co. photograph

or laundry detergents. They are excluded from this discussion.

The granulated light duty detergent powders offered the housewife safety for her fine fabrics, no soap scum on her dishes, easy rinsing, and mildness. For nearly 20 years these features were sufficient to make such granulated powders an important segment of the whole detergent market. Today, these products are largely disappearing — even the pioneer, "Dreft," is now an alkaline, built detergent. Liquid "light duty" detergents with all of the good features mentioned above plus convenience and neater, compact, more attractive packages have almost completely displaced these powders.

The first of the liquids, "Glim," which appeared in the mid-forties was originally nonionic based. Later products, and in fact most of the large number of present liquids in this field, contain anionic surfactants. "Lux Liquid," "Trend," "Vel," "Joy," and more recently "Ivory Liquid" and "Swan Liquid" are well-known representatives of this group.

While dodecylbenzene sulfonate is by far the most common primary active ingredient, sulfated fatty alcohol- and alkylphenol-ethylene oxide condensates as well as the fatty ether of 1,2-dihydroxy propane sulfonate are also used in large quantities. Why are anionic surface active materials, almost without exception, the primary surfactants in light duty liquids? The reason can best be found by reviewing the properties considered by the housewife when buying a product of this type. Advertising emphasizes mildness, economy, ease and rapidity of use, and billowing suds. All of these certainly loom large in the housewife's selection of a product, although their relative importance is rather difficult to assess. In any event, anionic surfactants when properly formulated can lead to products which meet all these requirements, as well as offering the less obvious assets of ready availability, uniformity, good color and odor, and stability of the surfactant itself.

Since satisfactory utility of anionic surfactants in a product of this type can be achieved only through proper formulation, that is, by use of suitable ancillary materials, a review of the former must include consideration of the associated materials necessary for its proper functioning. Light duty liquid detergents can generally be considered as consisting of three classes of components:

1. Primary active material
2. Modifying or secondary active material
3. Solvents and minor constituents

The total amount of the first two components in liquids presently on the market is in general 30-40 per cent of the total formula, about the same level as in the original granulated light duty products. The concentration of primary, anionic surfactant usually lies between 20 and 35 per cent, the remainder being the modifying or secondary active material.

Primary Active Materials

Primary active materials are the surfactants which carry the main work load of the product. They are responsible for the basic detergency, foaming power, economy, etc., but are modified and improved by use of auxiliary materials so that the final complete formulation will be acceptable.

As noted earlier, dodecylbenzene sulfonates are the most commonly used primary active materials, the sodium and ammonium salts being employed more or less interchangeably while the more costly alkylolamine salts are less often used.

Tetrapropylene benzene sulfonate, the sulfonate of so-called detergent alkylate, is particularly attractive as a primary active because of its ready availability, uniformity, and stability. When properly formulated with a suds stabilizer, usually an alkylolamide of lauric acid at a level of 1/5 to 1/3 of its own weight, alkylbenzene sulfonates of this type develop acceptably voluminous and stable suds. Unlike material produced earlier, present polypropylene benzene sulfonates have good color and odor. Some detergent alkylates, in fact, are now being successfully sulfonated by SO_3 processes, indicative of the considerable improvement in color and odor stability achieved within the past few years.

Sulfated ethoxylates of fatty alcohols and alkyl phenols probably rank second in usage as primary surfactants in liquid detergents.

The first of this class to attain wide usage were the sulfates of octyl- and nonylphenol ethoxylates, generally as the ammonium salt because of the easy sulfation route offered by reaction with sulfamic acid. The organic portion of the molecule can be derived from readily available raw materials, although at somewhat greater cost than tetrapropylene benzene.

In the form of the ammonium salt, present sulfated alkylphenol ethoxylates have good color and odor. Stability is somewhat less than with the alkylbenzene sulfonates, although adequate in solutions which are kept neutral or alkaline.

These sulfates are most useful because of their good sudsing and detergency properties. Suds boosters are in general not required to obtain acceptable foam levels, probably due to the stabilizing effect of the unsulfated base ma-

terial. Alkylolamides, and in some cases fatty alcohols, when present, can however confer additional suds stability . The sulfated alkylphenol ethoxylates are also good fabric detergents, noticeably better in an unbuilt light duty detergent than the more widely used dodecylbenzene sulfonates. They are somewhat less effective, however, than the latter in hard surface cleaning, such as dishwashing.

As mentioned previously, these active materials are generally prepared by sulfation with sulfamic acid. Although rather costly and suitable only for preparation of the ammonium salt, this method is preferred since reaction is confined to the terminal hydroxyl group and undesirable by-products are not formed. Use of chlorosulfonic acid, for example, although permitting neutralization with a variety of bases, produces chloride salts making it almost impossible to prevent corrosion of the metal containers generally used for liquid detergents.

Other sulfating agents, such as SO_3 or oleum, while free from this defect, usually lead to sulfonation on the benzene nucleus with considerably reduced sudsing and detergent properties in the surfactant. Although considerable effort is being expended in some quarters in the search for less costly sulfation procedures, sulfamic acid sulfation still appears most satisfactory.

A more recently used sulfated ethoxylate is that based on a technical lauryl alcohol. Although similar in many respects to the materials just discussed, this active possesses some noteworthy differences. Being of fatty derivation, it is somewhat less readily available and is inevitably subject to the price fluctuations of a natural product. The absence of the benzene nucleus, however, simplifies the problems of sulfation. Most common sulfating agents give products of good color, and the choice of cation is not limited as it is with sulfamic acid. As with the alkylphenol products, low pH systems must be avoided.

A similar product prepared from tridecyl alcohol has almost identical properties. Since it is derived from petroleum via the OXO process, its availability and price are less variable than the fatty alcohols. In some circumstances, therefore, it may be more attractive than the straight-chain compound.

The most recent primary active to appear in a household product is the lauryl ether of 1,2-dihydroxypropane sulfonate. While not a new material, its use has only in recent years become economically feasible with the ready availability of epichlorohydrin and the development of suitable procedures for conversion to the sulfonate. This active combines some of the preferred properties of dodecylbenzene sulfonate with those of the sulfated ethoxylates. It is superior to the latter in stability, but exhibits their generally desirable fabric detergency properties. Both sodium and potassium salts are possible, and their differing solubilities can be used to advantage in complete formulations. Suds stability of this active is excellent where unreacted hydroxylated material is present.

One additional primary anionic surfactant should be mentioned. Lauryl sulfate until recently was widely used in light duty liquid detergents and other detergents such as shampoos. While still retaining its popularity in toiletries, it has now largely disappeared from the light duty household detergent market because products made with it do not equal the efficiency and mildness of those made with the other actives.

Combinations of primary actives also are frequently encountered in practice. Thus, the dodecylbenzene sulfonate-sulfated alkylphenol ethoxylate pair can provide the many properties desired by the housewife, a combination which cannot readily and economically be obtained from any single anionic active.

The presence of auxiliary materials is usually essential to obtain maximum effectiveness from the primary active material, particularly in respect to sudsing and detergency characteristics.

The use of fatty alkylolamides for this purpose is so widespread that only a few comments on these materials seem warranted here. The choice of material is sharply limited by solubility considerations. In practice, only lauric monoethanolamide and lauric and coconut diethanolamides have been used. These additives, when properly combined with the primary active materials, can lead to increased suds volume and suds stability as well as improved fabric detergency.

For many years the only diethanolamide available was the so-called "Ninol" type, prepared from fatty acid and a large excess of diethanolamine. Not long ago amides of higher activity became available, obtained by aminolysis of the methyl esters of the fatty acids. In addition to the distinct economic advantage for the newer amide, the lesser amount of unreacted basic material present permits greater latitude in formulating.

The monoethanolamides, because of the relatively uncomplicated reaction of the primary amino group, are prepared directly from an amine and fatty acid.

Lauryl alcohol should also be mentioned as a secondary active material. Although its use is at present largely restricted to one manufacturer of light duty liquid detergents, its effectiveness in improving sudsing characteristics of lauryl sulfate and certain closely related anionic surfactants is well recognized. In general, detergency characteristics are unaltered by this additive.

Several primary anionic and nonionic surface active materials should also be considered in the category of additives, since they modify the properties of other primary actives. The sulfated alkylphenol ethoxylates behave in this

manner. In the dodecylbenzene sulfonate - sulfated alkylphenol ethoxylate pair mentioned earlier, the latter material is a strong suds booster or stabilizer for the former. Similarly, unsulfated nonionics often have a marked effect on sudsing properties, particularly when used with dodecylbenzene sulfonate.

Solvents and Minor Components

This grouping includes those necessary components other than actives. Although essential to the formulation of a successful detergent, these materials are in general suitable for use with various types of primary actives rather than being restricted to anionics only. The most important of these are the water soluble alcohols used as solubilizing agents. Of these, ethyl alcohol has certainly found the greatest acceptance. Isopropanol's lesser usage despite absence of governmental restrictions, such as those imposed on the use of ethanol, is probably the result of its odor which is disliked by many and is difficult to cover by perfume.

Other minor components have been mentioned briefly. The use of perfume is universal, while colorants, either to obtain uniform product color or to alter it from the usual amber appearance are found only slightly less often.

Two relatively recent innovations in the field of light duty liquid detergents have been the inclusion of opacifying agents and fluorescent dyes. Opacity is usually obtained by addition of material insoluble in the liquid system, with proper provision for continued stability of the dispersion. Various synthetic latices have been used, while less frequently opacity is developed by addition of a soluble salt to insolubilize one of the active components. This latter method is rather difficult to control, but is currently being used in at least one household product. The wax-like materials commonly used as opacifiers in toiletries have not found acceptance in these light duty detergents. Many adversely affect sudsing properties, and most decrease or lose their opacifying characteristics at moderately elevated temperatures.

Fluorescent dyes, of course, do not modify detergency properties, although they do have a powerful effect on the housewife's evaluation of a product used for washing fabrics. Selection of dyes for this type of product must take into consideration the wide differences in substantivity on the various fibers, and should not overlook the possibility of interaction between dye and active material which can result in loss of fluorescence effect.

Problems in Formulating

Most if not all of the problems of formulating a product to obtain maximum utility and acceptance are the result of the variations in use conditions encountered in the home. All of you are aware of the wide range of water hardness found in this country, and of the differences in washing habits based on geographical, social, and economic groupings. Because of these, a successful product must be to some extent a compromise. It cannot, for example, be markedly deficient in very soft or very hard water. It must perform well over a range of temperatures, from cool or even cold to hot water. It must wash lightly and heavily soiled dishes and silverware, and also be capable of removing baked-on fatty and proteinaceous materials from pots and pans. Clothes must be made clean whatever their fiber content may be.

This last factor is posing an increasing problem to the manufacturer of detergent products. The increasing use of synthetic fibers is one phase of the problem. Certain of these have a considerable tendency to yellow with age and use, a discoloration which often comes from a material absorbed in the fiber structure and cannot be removed by detergents. The use of fluorescent dyes offers a method of retaining whiteness, but here another problem arises—some fibers are not successfully dyed by known fluorescers. The dye manufacturer who can offer all-fiber substantivity has the likelihood of an immediate market for his product in this field. Only slightly less of a problem in respect to the use of fluorescent dyes is the rapidly increasing sale of the resin treated cottons. Their drip-dry feature invites the use of light duty detergents in laundering, yet the resin coating of the fiber exhibits markedly reduced affinity for most of the fluorescent dyes and introduces new problems of soil removal.

Containers

Probably no other problem in light duty liquid detergent formulation has received more attention in recent years than that of suitable containers. The glass bottle of the early products has now almost completely disappeared. Its weight and susceptibility to breakage, particularly in the home where it was frequently dropped from wet hands, destined its replacement by the metal can.

Development of a suitable metal container was a long process, since some degree of attack on iron is common to all liquids of the anionic type. These liquids are inherently excellent solvents for many types of lacquers and coatings, and hence protection of the base metal required development of improved linings resistant to the solvent action of the detergent. The first successful container was developed for the then new "Lux Liquid." It was undoubtedly an important factor in its rapid acceptance and the revolutionary rate of growth in sales of all light duty liquid detergents. Recently blown bottles of linear or high density polyethylene have been used for test marketing of Lever's newly developed "Swan Lotion Liquid," and have appeared in limited markets with several other products. They represent an effort by bottle manufacturers to recover their original position in the field of containers for detergents. Materials cost shifts may soon provide an eco-

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Anionic Surface Agents in Heavy-Duty Industrial Cleaners

By John B. Davidson, Ph.D.,*
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FORMULATORS of heavy-duty industrial cleaners generally choose anionic surface active agents as the preferred active ingredients. There are several compelling reasons for this generality, and several exceptions to it.

Heavy-duty industrial cleaning can be divided into two major classifications. A portion of the cleaning is for maintenance purposes. Such cleaning would include the washing of trucks, busses, airplanes, and railroad engines and cars. It would include the steam cleaning of motors and machinery. Included also would be the cleaning of floors and walls of factories, garages, meat packing plants, etc. Thus maintenance cleaning in industry requires many heavy-duty cleaners.

A much larger quantity of heavy-duty industrial cleaners is used directly in manufacturing processes such as washing between the various operations in machine shops. Also included is cleaning of metal parts after casting, machining, stamping, or polishing and before electroplating, painting, enamelling, or assembly. Such washing operations may involve either soaking or spraying for cleaning.

The soils involved in heavy-duty industrial cleaning vary from non-polar lubricating oils and greases to more polar drawing compounds, cutting oils, rust-preventive compounds, buffing compounds, and the like. These soils may be burnt on by the temperatures involved in high pressure stamping or rolling, by buffing friction, or by heat treating. Aging and oxidation may also affect the condition of the soil. In general, it may be said that the soils encountered in heavy-duty industrial cleaning are among the most difficult to remove materials encountered anywhere.

Because of the difficulty involved in removing industrial soils, very stringent detersive conditions are required. Either powerful solvents or highly alkaline detergents must be used. Kerosene or chlorinated solvents with aqueous systems have been widely employed because of their effectiveness and relatively low cost. Flammability and toxicity are the main objections to solvent type cleaners. In addition such cleaners leave sufficient residue on the washed surface to require a secondary cleaning process before effective plating, painting, or enamelling. Since the famous fire at the Livonia General Motors Hydromatic plant, solvent-type cleaners have been largely replaced by alkali-type cleaners. Alkaline cleaners are growing in popularity although they are generally higher in cost than solvent cleaners.

"Di-phase" Cleaner

The most popular solvent soak cleaner is the so-called "di-phase" cleaner of which the cleaner comprises two layers. The piece to be cleaned is dipped through a solvent layer into an aqueous layer and then drawn out through the solvent layer. Solvent-type cleaners are also applied as sprays. Often these cleaning solutions comprise about five per cent of emulsifiable kerosene dispersed in water. The kerosene acts not only as a solvent but also is needed as a defoamer. Unfortunately, losses and resultant unbalance through steam distillation are large.

Alkali-type Cleaners

Alkali-type cleaners depend for their effectiveness on strong alkalinity, as their name implies, and also contain a large proportion of a surface-active agent. This class

Table I. Comparative Surface-Active Properties

Anionics	Nonionics
Always foam	Lighter foam—can be controlled
More difficult to rinse—reactive to metals	Better rinsability—non-reactive to metals
Better wetting-out of metal surfaces	Less effective wetting of polar surfaces
Much greater dispersing power—less redeposition—greater soil carrying capacity	Need added dispersant for heavy soil loading
Often require soft water or sequestrants.	More hard water tolerance
More tolerant to heavy building and high pH	Easily salted-out—insolubilized in alkali.
Best for polar soils—fatty acids, inorganics	Best for non-polar soils—oils, greases

*Paper presented before 45th annual meeting, Chemical Specialties Manufacturers Assn., New York, Dec. 9, 1958.

of cleaners includes those used in both spray-type and soak-type applications. While soak installations are presently the most common, there is a trend toward the increased use of spray systems. Combined systems may utilize advantages of both.

The choice of the surface-active agent for use in heavy-duty industrial cleaners is limited to the anionics and the nonionics. The cationics generally are not suited and are too expensive. The general properties of anionics and nonionics as they pertain to heavy-duty industrial cleaning are listed in Table I.

The anionics are preferred as surface-active agents for heavy-duty industrial cleaning where foam can be tolerated. Thus, for solvent-type soak or spray cleaners, anionics are usually chosen. Only in the case of alkaline spray cleaners are nonionics preferred over anionics. The reason for this is that the foaming tendency of nonionics can be much more readily controlled.

Several types of anionics are used extensively in heavy-duty industrial cleaners. These are listed in Table II along with their most common uses.

Some anionic surface-active agents are used in minor amounts in heavy-duty industrial cleaning. Thus, sulfated Oxo alcohols and sodium xylene sulfonate find application as coupling agents. Quite a few amphoteric agents which perform as anionics in alkaline solution are suitable for use in alkaline soaks but are often avoided due to their relatively higher cost.

Table II. Anionic Surface-Active Agents for Heavy-Duty Industrial Cleaning

Surface-Active Agent Type	Solvent-Type Soaks	Solvent-Type Sprays	Alkaline Soaks
Alkyl aryl sulfonate	x	x	x
Petroleum sulfonate	x	x	
Lignin sulfonate			x
Fatty acid soaps	x		x
Rosin soaps	x		x

Formulation

The formulation of heavy-duty industrial cleaners is rigidly controlled by the conditions under which they are used. A few industrial plants have available chemically softened water but the majority rely on city water or on their own well water. The temperatures involved in heavy-duty industrial cleaning are higher than those used in other applications. Alkaline soaks generally run from 180° F. up to a rolling boil. The expected useful life of industrial cleaners is unusually long. Heavy-duty soak tanks in the porcelain industry may run at a boil for three to four months before the cleaning solution is replaced. In the electroplating industry, one month is a common soak tank life. Big spray cleaners may run well over a week. In automotive body manufacturing plants it is common to filter soil from the cleaning solution in spray cleaners extending the useful life up to a month, in one notable case, over a year.

The concentrations at which heavy-duty industrial cleaners are used are shown in Table III.

The long heating of industrial cleaners puts severe demands on their chemical stability and on their tolerance for the hard water salts which build up as more hard water is added to make up for evaporation losses. There is also a continuous exposure to the carbon dioxide from the air which neutralizes the alkaline ingredients.

In hot, highly alkaline solutions, carboxylate materials have chemical stability superior to that of sulfonates, although the latter often prove satisfactory. Rosin soaps, fatty acid soaps, and alkylbenzene sulfonates are generally the preferred surface-active agents. Sometimes small amounts of nonionics are added to increase the solubility of the anionic. In the United States the amount of active ingredient used in a heavy-duty industrial cleaner is generally between five and 10 per cent. Percentages of between 15 and 20 are common in Europe, however.

The high alkalinity of heavy-duty industrial cleaners is usually derived in part from sodium hydroxide. This not only aids cleaning but also increases the capacity for carbon dioxide. It also precipitates calcium and magnesium hardness as carbonates and hydroxides, respectively. Sodium orthosilicate and sodium metasilicate are the major detergent builders used in heavy-duty industrial cleaning formulations. Trisodium phosphate is often used as the builder in floor cleaners because of its fast rate of solution. Both sodium tripolyphosphate and tetrasodium pyrophosphate are widely used in heavy-duty industrial cleaners for combined building and sequestering action. Often special actions are desired for special applications. Thus organic sequestrants as gluconates or ethylene diamine tetraacetates may be added to cleaners to protect plating baths in the same production line from possible contamination.★★

Table III. Typical Use Concentrations for Heavy-duty Industrial Cleaners

12 oz./gal.	Soak cleaning used engine blocks prior to rebuilding
10 oz./gal.	
8 oz./gal.	Most popular soak cleaner concentration
6 oz./gal.	
4 oz./gal.	Minimum soak cleaner concentration Maximum spray cleaner concentration
2 oz./gal.	Usual spray cleaner concentration
0 oz./gal.	Minimum spray cleaner concentration

Detergent Adsorption on Soil and Substrate

By Jay C. Harris
Monsanto Chemical Co.
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Part III

ADSORPTION on Fibers: Harris (38) reviewedl the adsorption of surface active agents by fibers at considerable length. Since that time, further information has been developed and each fiber type will be treated separately as the information warrants.

The importance of care in selection of cotton fabric was shown during an attempt (74) to clarify conflicting claims concerning the adsorption on cotton of sodium carboxymethyl cellulose (NaCMC). Almost raw cotton showed no adsorption of NaCMC, but scoured and bleached fabric gave every indication of positive adsorption. Raw cotton contains varying percentages of nitrogen present in natural fiber contaminants, and adsorption of surfactant was found to increase with increased nitrogen content of the fiber (25). Apparent variation in adsorption data consequently may be attributed at least in part to the nature of the test substrate. Equally as important as the test substrate is the technique used in performing the adsorption; whether due consideration has been given to fiber moisture content, time and temperature for exposure and solution concentration; and technique for the withdrawal of the sample and the removal of any excess solution from the fabric. Adsorption isotherms give the complete picture for a given system, but in the accompanying tables only the maximum adsorption values were selected.

Table 4 presents data from a variety of sources. It is pertinent not so much for the considerable variation shown, but because values from within a series of specific experiments can provide an indication of the direction taken in a homologous series of surfactants, or comparison of adsorption by types of surfactants.

In the homologous series of soda soaps, all tested under the same conditions (108), the adsorption attains a maximum between the C_{12} and C_{14} homologs (0.0003 and 0.0009 g/g fiber), to change only slightly on increase in the carbon chain length. Greater change with increasing carbon chain length is shown for the n-alkyl sulfate series (106), the adsorption values increasing from C_{12} to C_{16}, in the order (g/g fabric) of 9×10^{-5} to 7×10^{-3} or roughly hundredfold.

From the data given it is possible to calculate the extent of the adsorption obtained. Estimates of the "active" surface of cotton vary from 2.7×10^{20} A^2 (99) to 3×10^{22} A^2 (98) per gram of fiber. It is assumed that cross sectional areas of 26 A^2 per molecule for soap, 40 A^2 for the long chain alkyl sulfates (Table 5), and 60 A^2 for nonionics are representative. The

Table 4. Adsorption on Cotton

Surfactant	(g/g) Cotton x 10^4	Reference
Various soaps	5-18	108
80-20 Tallow coco soap	195	19
Castile soap	14	115
Sodium laurate	3	108
Sodium myristate	11	108
Sodium palmitate	9	108
Sodium palmitate	10	62
Sodium stearate	9	108
Sodium oleate	12	108
Sodium oleate	70	29
Sodium dodecyl sulfate	0.9	106
Sodium tetradecyl sulfate	5	106
Sodium hexadecyl sulfate	70	106
Sodium octadecyl sulfate	0.7	106
Sodium secondary alkyl sulfate	negligible	25
	65	4
Sodium sulfate of glyceryl monolaurate	35	106
Sodium dodecylbenzene sulfonate	50-70	27
	7	106
	18	26
	30	62
Sodium N-methyl-N-oleyl taurate	1.3	106
Cetyl trimethylammonium bromide	36	106
Diisobutylcresol-10 ethylene oxide adduct	27	106

Table 5. Coverage of Surface Area of Cotton (per gram)

Surfactant	% Coverage Case A 2.7×10^{20} A²	Case B 3×10^{22} A²
Sodium laurate	7.8	0.07
Sodium stearate	17.0	0.16
Sodium dodecyl sulfate	2.8	0.03
Sodium hexadecyl sulfate	18.0	0.16
Diisobutylcresol-10 EO adduct	58.0	0.5

results which are shown in Table 5 demonstrate that in no case is a full monomolecular layer of surfactant present, only the nonionic product approaching half-coverage at the lower estimate of cotton surface area.

The effect of fiber treatment is shown in comparing dull and bright finishes for acetate, viscose and nylon. Only viscose shows any real difference in degree of adsorption as a result of the treatmen*, probably attributable to the delustrant used. (Table 6).

Silk, wool and nylon have greater or lesser degrees of proteinaceous character, the relatively low order of the latter being demonstrated by the lower order of surfactant adsorption. Fineness of wool had no effect upon the reaction of wool with acids, all of them reacting with 0.08 g equivalents of any acid. This indicated that about 1.1 per cent of the wool surface was basic, and of this, one third was in the form of the primary amine (69). The long chain alkyl sulfate ion is adsorbed by wool, reacting with the wool basic groups, the surfactant ion behaving as a colorless dye. This occurred in acid media, and was not a physical adsorption, as under simple washing conditions it did not desorb (4). Others (72) measured adsorption of an alkyl sulfate and an alkyl methyl taurate on wool as a function of pH, finding that adsorption paralleled the potential curve of wool in acid solutions, and was negligible in alkaline solutions. (Tables 7 and 8).

Soaps are subject to hydrolysis, both "neutral" soap and fatty acids being adsorbed by fibers (108). It was noted (29) that addition of sodium hydroxide to

Table 7. Adsorption on Wool

Surfactant	g/g Wool x 10^4	Reference
Castile soap	360	115
80-20 Tallow coco soap	600	19
Sodium laurate	30	108
Sodium myristate	24	108
Sodium palmitate	78	108
Sodium palmitate	220	62
Sodium stearate	34	108
Sodium oleate	118	108
Sodium oleate	120	73
Sodium alkyl sulfate	480	4
Sodium lauryl sulfate	40	106
Sodium myristyl sulfate	14	106
Sodium secondary alkyl sulfate	340	4
Sodium dodecylbenzene sulfonate	280-450	27
Sodium dodecylbenzene sulfonate	350	62
Cetyl pyridinium bromide	63	12
Cetyl trimethylammonium chloride	150	106
Two nonionics	40-280	58

Table 6. Adsorption on Rayons

Fabric	Surfactant	g/g Fabric x 10^4 Fabric Type Bright	Dull	Reference
Acetate	Sodium laurate	17	20	108
Acetate	Sodium myristate	33	38	108
Acetate	Sodium palmitate	23	25	108
Acetate	Sodium stearate	15	15	108
Acetate	Sodium oleate	34	36	108
Acetate	Sodium lauryl sulfate	16	—	106
Acetate	Sodium myristyl sulfate	43	—	106
Acetate	Cetyl trimethylammonium chloride	37	—	106
Viscose	80-20 Tallow-coco soap	76	—	19
Viscose	Sodium laurate	22	38	108
Viscose	Sodium myristate	36	84	108
Viscose	Sodium palmitate	22	46	108
Viscose	Sodium stearate	18	15	108
Viscose	Sodium oleate	20	43	108
Viscose	Sodium lauryl sulfate	0.3	—	106
Viscose	Sodium myristyl sulfate	12	—	106
Viscose	Cetyl trimethylammonium chloride	98	—	106

Table 8. Adsorption on Miscellaneous Fibers

Fabric	Surfactant	g/g Fabric x 10^4 Fabric Type Bright	Dull	Reference
Nylon	Sodium laurate	10	9	108
Nylon	Sodium myristate	26	30	108
Nylon	Sodium palmitate	22	26	108
Nylon	Sodium stearate	15	14	108
Nylon	Sodium oleate	25	25	108
Nylon	Sodium lauryl sulfate	20		106
Nylon	Sodium myristyl sulfate	21		106
Nylon	Cetyl trimethylammonium chloride	17		106
Silk	Castile soap	180*		115
Silk	80-20 Tallow-coco soap	110		19
Silk	Sodium dodecylbenzene sulfonate	320-480		27
Glass	Sodium dodecylbenzene sulfonate	24-36		27

*Fabric type not listed.

repress hydrolysis reduced adsorption from 0.7 per cent to a 0.1 per cent level, "neutral" soap being adsorbed as a 1:1 sodium oleate: oleic acid complex. Water hardness seems to free the active groups of cotton and the calcium soaps formed were not sites for further acid-soap adsorption. That the sorption of soap (and presumably of other hydrolyzable surfactants) is a complicated process was emphasized, the more or less independent sorption of at least three components contributing to the observed sorption: Neutral unhydrolyzed soap, free fatty acid and/or acid soap, and hydrolytic alkali. Fibers appear also to have specific affinities for certain of the soap components in contrast to the character of carbon black (108).

The adsorption of electrolytes on cellulose was said generally to agree with the lyotropic series (42). For anions and bivalent cations, adsorption was mainly determined by their affinity for the solvent, ions with high energy of hydration being weakly adsorbed, and ions with small energy of hydration being strongly adsorbed.

Cotton fiber sorbs both alkali and silica from solutions of sodium metasilicate (68), but the amount of alkali adsorbed was much greater than the amount of silica. The mechanism of adsorption was believed to involve van der Waals forces, hydrogen bonding and chemical reaction with metal oxide impurities.

The condition or processing history of a fabric can very markedly affect adsorption values, and undoubtedly accounts for much of the variation shown in reported data. Other variables that affect such data are control of the physical conditions of adsorption and the technique for measurement and calculation. The data recorded are the maximum figures, and frequently were taken from complete adsorption isotherms.

Examination of Table 4 for the soap series on cotton seems to indicate that saturated soaps all are adsorbed to about the same extent as one might be led to suspect from area per molecule coverage. The alkyl sulfate series data are too variable to permit any conclusion. The sodium dodecylbenzene sulfonate data are also quite variable but suggest increased adsorption over soap. In homologous series of compounds where all conditions were comparable, increase in carbon chain length seemed to result in increased adsorption.

Based upon two extremes of estimates of cotton surface area and reasonable estimates of the areas per molecule of soap, alkyl sulfate and nonionic, and of their maximum adsorptions, calculations of surface coverage by these surfactants in no case showed monomolecular coverage, the closest approach (half-coverage) being with the nonionic product.

Fiber treatment, e.g., dulling additive, seems to affect extent of adsorption dependent upon the dulling agent used. Greater quantities of surfactant were adsorbed by acetate and viscose than by cotton.

Wool showed greatest adsorption, many fold greater than cotton, apparently both by physical and chemisorption. Adsorption occurs at amine sites, particularly with acid hydrolyzed surfactants which react chemically with the fiber. Silk exhibited similar adsorption characteristics, while nylon more nearly approached the rayons in adsorption character.

Adsorption on Soils: The adsorption data for soils is somewhat less extensive than for fibers: In only few instances have the adsorption characteristics in the detergent type system been estimated. While quartz is not necessarily a good example of soil, it probably is frequently present. A carbon 14 tagged sodium laurate was used in the investigation of its flotation characteristics (30). The laurate ion was adsorbed as a function of laurate concentration, and independently of pH in the range 8.8-11.4. A study of adsorption of sodium oleate on kaolin (particle size 0.12 to 1μ) indicated the formation of a bimolar layer (41). A bimolar layer of sodium laurate on barium sulfate also was found, the polar ends remaining in solution (40).

The *dispersing agent* required ("Marasperse CB"*) for two types of carbons was shown to be a function of the surface areas of the carbons and gave adsorption isotherm type surface area-concentration curves (21).

Bentonite was shown to adsorb hexadecyltrimethylammonium bromide at cation exchange sites, but not all these sites were filled when the surface was covered by the surfactant molecule, and the clay became organophilic (71). Adsorption isotherms for sodium dodecyl sulfate and potassium myristate on graphite have been developed (20). For a graphite of 3.47 m^2/g surface area, potassium myristate was adsorbed at a maximum of 41 x 10^{-4} g/g, and sodium dodecyl sulfate 32 x 10^{-4} g/g.

Adsorption of sodium myristate as a function of the surface area of several carbons was plotted, showing increased adsorption of the soap (both alkali and fatty acid) with increase in specific surface. With surface areas greater than 100 m^2/g, the adsorption rises very sharply, increasing four-fold in adsorbed soap as the limiting area of 200 m^2/g (85) is approached. The adsorption of sodium myristyl sulfate on cotton and carbon under essentially the same experimental conditions gave adsorption values of 8.5 x 10^{-4} and 765 x 10^{-4} g/g cotton or carbon (79).

The adsorption values for a variety of surfactants on Micronex carbon are shown in Table 9. It is apparent that the adsorption for the soap and the sulfate series increases with increasing carbon chain length.

A nonionic surfactant (nonylphenol-10.5 mols ethylene

*Registered trade name of Marathon Corp., Rothschild, Wis.

Table 9. Adsorption on Micronex Carbon Black (86, 107)

Surfactant	Max. Adsorption g/g Carbon x 10^4	Temp. °C
Sodium lauryl sulfate	809	50
Sodium myristyl sulfate	1018	50
Sodium cetyl sulfate	1396	50
Sodium stearyl sulfate	1325	70
Lauryl monoglyceride monosulfate	940	50
Sodium-N-methyl-N-oleyl taurate	1325	50
Sodium oleyl isethionate	1606	50
Sodium alkylbenzene sulfonate	905	50
Sodium dioctyl sulfosuccinate	1110	50
Cetyl pyridinium bromide	1657	50
Cetyl trimethylammonium bromide	1560	50
Nonionics	about 1200	30
Sodium C_{12} Soap	212	70
Sodium C_{14} Soap	528	70
Sodium C_{16} Soap	1206	70
Sodium C_{18} Soap	1480	70
Sodium oleate	1029	70

oxide) was adsorbed by sand to the extent of 25 x 10^{-6} g/g of sand (the composite by three different methods). This corresponded to an area coverage per molecule of 55 A^2 as compared with 63 A^2 calculated from adsorption at the air/solution interface (43).

Sodium dodecyl sulfate was adsorbed to the extent of 35 x 10^{-3} g/g of Sterling NS Carbon and 3.8 x 10^{-3} g/g of cotton fabric in the same system of investigation (103).

The adsorption of sodium dodecylbenzene sulfonate on several soils was determined using radiotagged sulfur (13):

Soil	g/g of Soil x 10^4
Carbon black	56
Fe_3O_4	39
Fe_2O_3	10
Silica powder	4
Iron powder	4

The adsorption of several members of polyoxyethylated nonyl and octyl phenols on quartz powder showed no appreciable change in the maximum when changing from one phenol to the other. The equation expressing maximum adsorption ($\Gamma_{max.}$) was $\Gamma_{max.} = 250/R^{1.45}$, where R is the mole ratio of ethylene oxide to phenol (22).

An interesting concept of the effect of adsorption of alkyl aromatics on carbon black from n-heptane follows (101), possibly applicable in theory on aqueous systems. Table 10 shows the areas blocked by a series of alkylaromatics. Benzene whose surface area is 25 A^2 (thickness 3.7) blocked 41 A^2 of the carbon particle, the greater the size of the substituent alkyl chain the greater the area blocked. It was suggested that the alkyl chains were adsorbed not in the flat position, but mobile, their points of fixation acting as a ball point, blocking certain surface areas and preventing other alkyl aromatics from attaching to the surface, stronger in effect as chain length was increased. It was concluded that there was direct correlation between dispersion and the length of alkyl chain, since these adsorbed aromatics prevented close approach of the carbon particles.

Surface areas of carbon show sharp increases at surface areas greater than 100 m^2/g increasing four-fold as the limiting area of 200 m^2/g was approached. Adsorption data on soils and substrates under nearly identical conditions are not numerous: One indicated a hundred-fold greater adsorption on carbon than on the cotton substrate. Comparison of the data of Table 9 with Table 4 for similar compounds (but not necessarily under the same adsorption conditions) shows roughly hundred-fold greater amounts of surfactants adsorbed on soil as compared with cotton. Comparison of soil and wool adsorption values show four to twenty-fold greater values on the carbon soil. Polarity of soil markedly affects degree of adsorption but polarity of fabric shows less effect.

A series of adsorption tests was made (86) with "Standard Micronex,"** mean particle diameter 28mμ in which sodium sulfate was added to the surfactant in an amount equal to 1½ times the weight of surfactant used (in effect a 40% active content detergent composition). The adsorption isotherms of the built surfactants in general paralleled those of the pure products, increasing the extent of adsorption with the indication that the electrolyte effect was more marked with some surfactants than others. At the adsorption peaks of these curves, the adsorption values were almost identical, only a very slight increase with the built compositions being evident. Greatest increase in adsorption appeared at concentrations below the cmc. In another series of tests (106), C_{12}, C_{14}, C_{16}, and C_{18} sodium alkyl sulfates were adsorbed either as the pure surfactant or as compositions built with sodium sulfate as just described, the adsorbents being cotton, viscose, nylon, acetate, or wool. The adsorption of all surfactants was increased by sodium sulfate addition. For cellulosics (viscose, cotton) maximum adsorption of pure compound was obtained with the C_{16} sulfate, and for nylon, wool and acetate occurred with the C_{14} sulfate. The effect of sodium sulfate addition for any given fiber was in general to decrease by two carbons the alkyl sulfate exhibiting maximum adsorption (except cotton, which showed no such change), i.e., for viscose the maximum was attained with the pure C_{16} compound, but became C_{14} when sodium sulfate was added.

(*Turn to Page* 108)

**"Standard Micronex" is a registered trade name of Binney & Smith, Inc., New York.

Announcement is made that

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have combined their interests and will operate as divisions of a New York parent company to be known as

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The identities of these two long-established firms will be retained and each will continue to serve its customers in the same manner as in the past.

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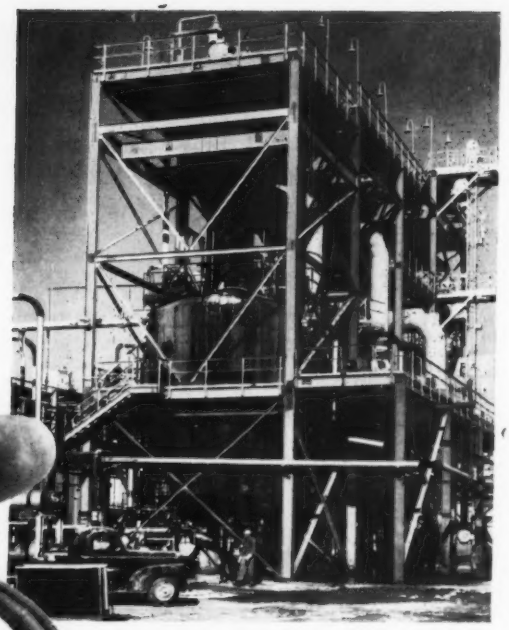

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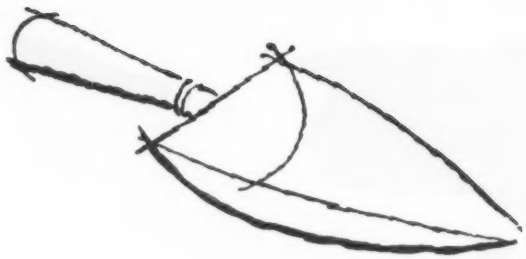

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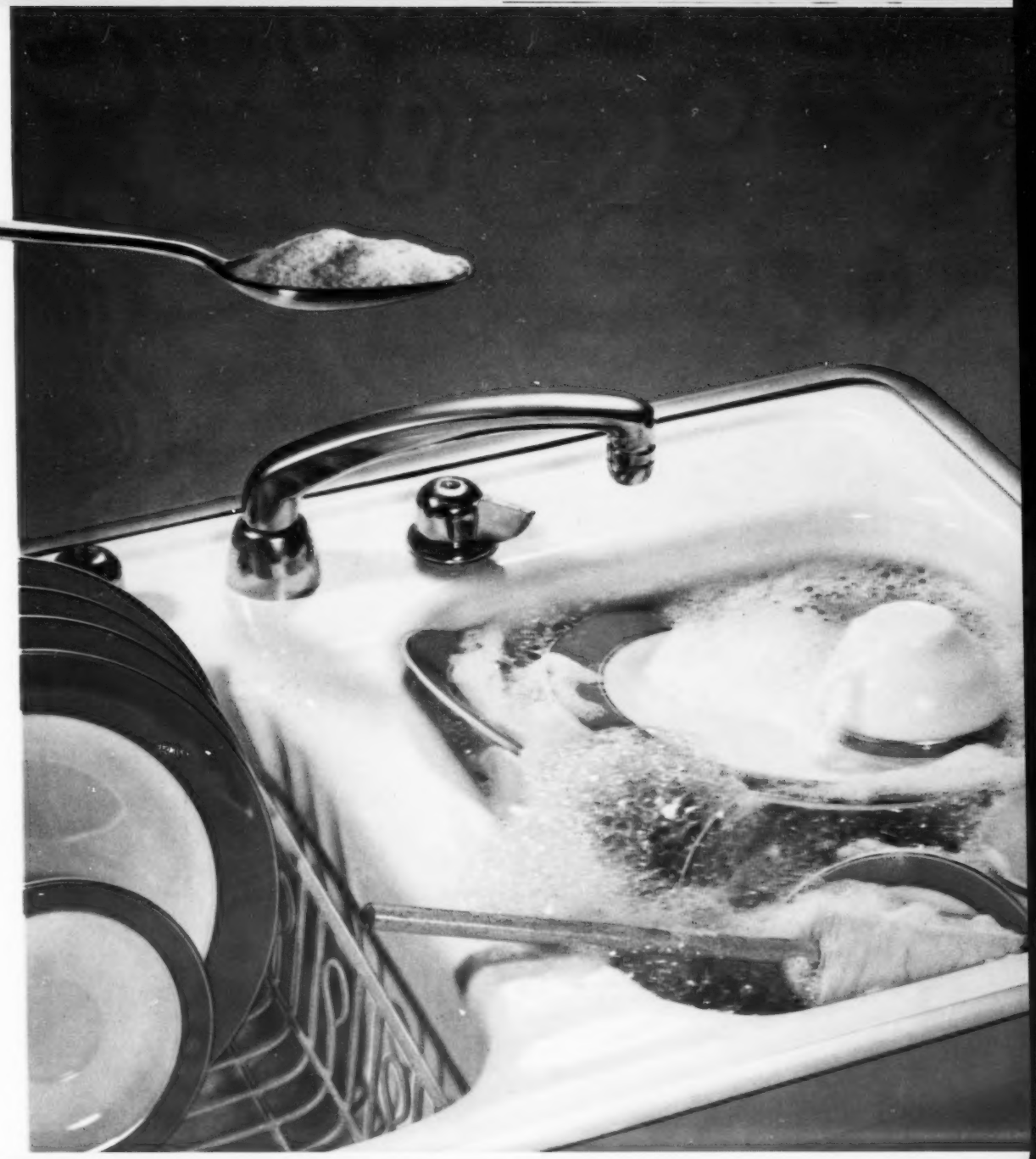

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James E. Ferris, left, Hooker Chemical Co., Niagara Falls, N. Y., retiring president, Chemical Specialties Manufacturers Assn., presents gavel to his successor, Donald M. King, president of Masury-Young Co., Boston, at CSMA's 45th annual meeting in New York last month. Mr. Ferris instituted what he hopes will become tradition of retiring president giving gavel to newly elected CSMA president. See page 63.

Advantages . . .

ADVANTAGES of membership in the Chemical Specialties Manufacturers Association are many. Direct services to members from CSMA headquarters, including the regular bulletin service, are of vital importance to every member firm. Through participation in the affairs of this very active trade association, many valuable contacts have been and can be made. And there are numerous other benefits.

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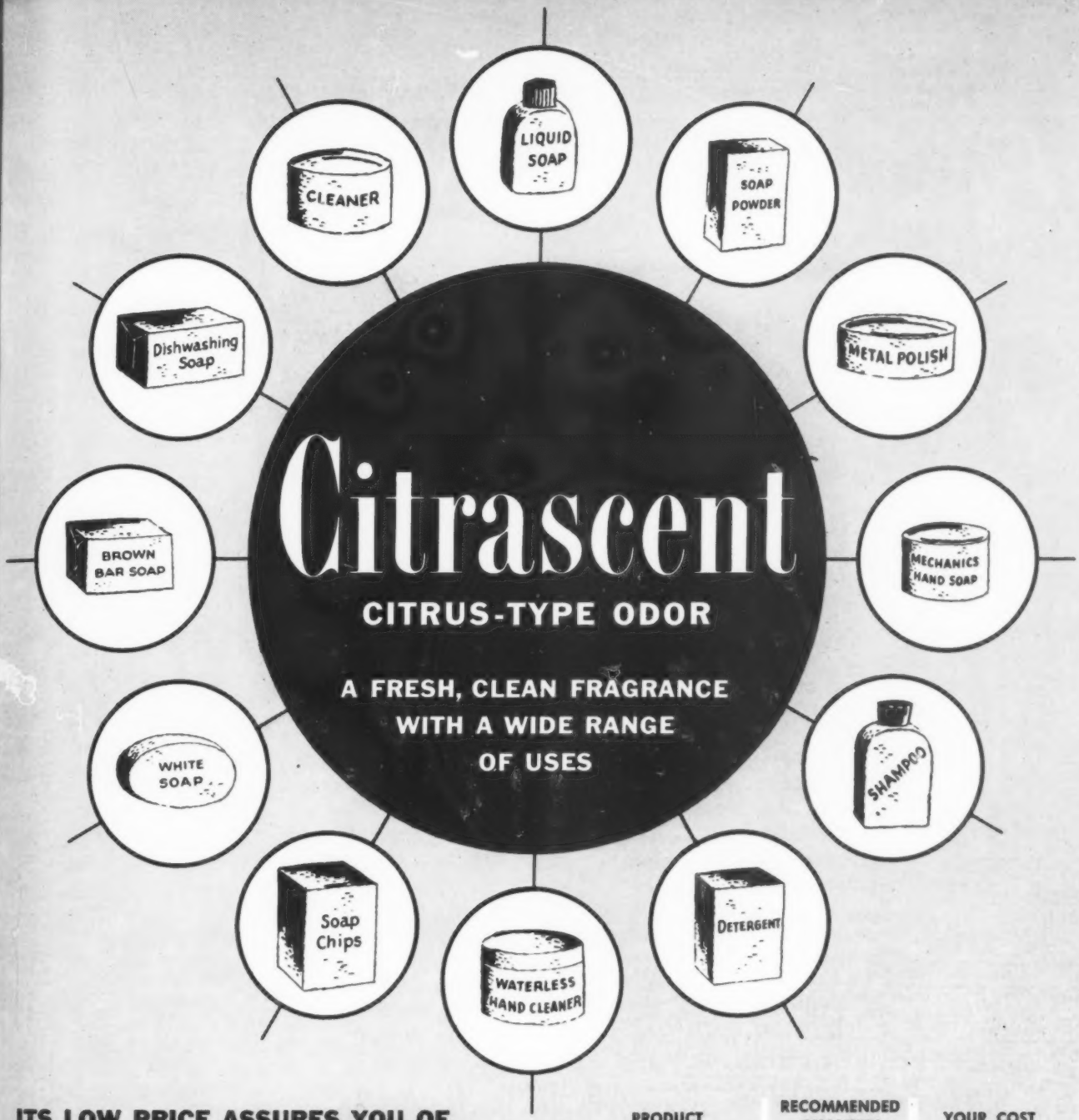

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CSMA Meets, Elects King

IN what could be described as easily the most action packed meeting in the history of the organization, the Chemical Specialties Manufacturers Association set up shop at the Hotel Commodore, New York, Dec. 9-10, for its 45th annual convention. In addition to holding 11 individual or joint sessions of the six divisions of which CSMA is composed, plus one general session, which was addressed by top health people in the federal and local governments, there were countless meetings of the Board of Governors of the association, committees and sub-committees. Two major chemical company presidents addressed two group luncheons during the meeting; the association's coveted Achievement Award was presented to Dr. E. G. Klarmann, vice-president and manager of technical services of Lehn & Fink Products Corp., New York; 11 aerosol products were cited as being outstanding packages; new officers and directors were elected; the Aerosol Division celebrated its tenth anniversary which was suitably marked with the setting up of an aerosol supermarket, and a new attendance record of 935 was set.

Donald M. King, head of Masury-Young Co., Boston, was elected president of CSMA to succeed James E. Ferris of Hooker Chemical Corp., Niagara

Meeting highlights in pictures: Top, CSMA president Donald M. King, Masury-Young Co., Boston, right, being congratulated by retiring president, James E. Ferris, Hooker Chemical Corp., Niagara Falls, N. Y., during banquet, Dec. 10.

Aerosol supermarket all set up and awaiting the visitation of editors.

Dr. Emil G. Klarmann, vice-president and manager of technical services, Lehn & Fink Products Corp., New York, being presented with illuminated plaque as winner of 1958 CSMA Achievement Award by James E. Ferris, president. Irving Gaines, Onyx Oil & Chemical Co., Jersey City, N. J., chairman of the association's Disinfectant and Sanitizers Division, is at left.

Plaque for aerosol product judged best in its class and best-in-show is presented by Frederick G. Lodes, Lodes Aerosol Consultants, Inc., chairman of Aerosol Package Contest Committee, to Harry S. Lapow of Koodin-Lapow Associates, New York industrial design firm. Mr. Lapow's firm designed the label for the winning product: "Sizzl-Spray" barbecue sauce of Anderson, a division of Heublein, Inc., Menlo Park, Calif. Product was judged best package in its class, Food Products, as well as being selected top package in the annual competition. This is first year food aerosol products were judged.

Falls, N. Y. George W. Fiero of Esso Standard Oil Co., New York, was elected first vice-president, and Charles E. Beach of John C. Stalfort & Sons, Inc., Baltimore, was elected second vice-president.

Three new members were elected to the association's Board of Governors: Glenn E. Doerr, Federal Varnish Division, Chicago, to serve for two years; Michael Lemmermeyer, Aromatic Products, Inc., New York, and Leonard J. Oppenheimer, West Chemical Products, Inc., Long Island City, N. Y., three years each.

Retiring members of the board are Melvin Fuld, Fuld Brothers, Inc., Baltimore; Frederick G. Lodes, Lodes Aerosol Consultants, Inc., New York, and Ira P. MacNair, MacNair-Dorland Co., New York.

Chairmen of the six divisions elected at the 44th midyear meeting to take office following the 45th annual meeting and who serve on the Board of Governors include: Aerosol Division, E. J. McKernan, Seaquist Manufacturing Corp., Cary, Ill.; Automotive Division, A. James Coulter, Gulf Oil Corp., Pittsburgh, (reelected); Disinfectant and Sanitizers Division, Irving Gaines, Onyx Oil & Chemical Co., Jersey City, N. J., (reelected); Insecticide Division, John A. Rodda, Fairfield Chemical Div., Food Machinery & Chemical Corp., New York, (reelected); Soaps, Detergents and Sanitary Chemical Products Division, W. S. Jessop, U. S. Sanitary Specialties Corp., Chicago, and Waxes and Floor Finishes Division, Cyril S. Kimball, Foster D. Snell, Inc., New York, (reelected).

Insecticide Division

The opening session of the Insecticide Division, the morning of Dec. 9, featured a symposium on insecticide materials. John A. Rodda, Fairfield Chemical Div., Food Machinery & Chemical Corp., New York, chairman of the division, presided. A. C. Miller, Gulf Research and Development Co., Pittsburgh, was moderator.

First panelist, Joseph B. Moore, McLaughlin Gormley King Co., Minneapolis, briefly discussed three new MGK products which are available nationally: "MGK Repellent 326," "MGK Repellent 11," and "Pyrocide 175 RC." Both repellents can be formulated into cattle sprays, household sprays and aerosols. Both are effective against a wide range of insects, with "R-11" being particularly active against houseflies and gnats, he

Captions, facing page

Left to right and top to bottom: William Brosie, John C. Stalfort & Sons, Inc.; Donald E. Peck, Fuller Brush Co. and Leonard J. Oppenheimer, West Chemical Products, Inc. Walter Buhler, A. S. Harrison Co.; C. S. Treacy, L. M. Argueso & Co.; K. C. Jones, Bareco Wax Co., Division of Petrolite Corp. and Louis Mignacca, Fries & Fries, Inc.

George H. Ammersbach and Warren Godfrey, Fritzsche Brothers, Inc.; J. L. Brenn, Huntington Laboratories, Inc. and Donald H. Bush, Fritzsche. S. J. Campbell, Continental Filling Corp.; Sig Was, Oil Equipment Laboratories, Inc.; Fred C. Hutchings, General Chemical Division, Allied Chemical Corp. and Thomas A. Wallace, General Chemical.

Arthur Smith, Treplow Products, Inc.; Harold Abbott, Ultra Chemical Works, Inc.; David Dean and Alan Wolpert, Treplow. J. A. Quinn, Theobald Industries, Inc.; John H. Bahlburg, Wyandotte Chemicals Corp.; Alfred J. Lacasette, Continental Oil Co. and Robert K. Rigger, Wyandotte.

E. F. Mace, S. C. Johnson & Son, Inc.; Kenneth Nash and Philip Mueller, Olin Mathieson Chemical Corp. and Cameron Baird, Baird & McGuire, Inc. Edward J. Lewis, E. J. Lewis Co.; Paul J. Pauls, Paul J. Pauls, Inc.; Charles T. O'Connor, Shanco Plastics & Chemicals, Inc. and Albert R. Schuster, Shanco.

Lawrence Rossiter and Emre Bleier, Nopco Chemical Co.; Melville Sutton, West Chemical Products, Inc. and William J. Gavin, Nopco. Robert J. Hamilton and T. B. Moore, Antara Chemicals Division, General Aniline & Film Corp.; Max Potash, Polyvinyl Chemicals, Inc. and James A. Cloney, Antara.

Dr. Leona Baumgartner, Commissioner of Health of the City of New York, second from right, addresses general session, Dec. 10, devoted to subject of precautionary labeling. Dr. Baumgartner spoke on the subject of "Prevention of the Misuse of Chemicals — New York City Health Department Program." Other speakers and their subjects included: Hon. George P. Larrick, second from left, Commissioner of Food and Drugs, Department of Health, Education and Welfare, Food and Drug Administration, Washington, D. C., on "Safeguarding the User of Chemical Specialties." Dr. Harold Magnuson, medical director, special health service program, Department of Health, Education and Welfare, Public Health Service, Washington, D. C., third from left, also spoke. John D. Conner, Cummings, Sellers, Reeves and Conner, Washington, D. C., CSMA counsel fourth from left, introduced the speakers. Others on the platform were: James E. Ferris, Hooker Chemical Corp., Niagara Falls, N. Y., CSMA president, extreme left, and Donald M. King, Masury-Young Co., Boston, first vice-president CSMA.

said. "R-326" is of light color and has a faint floral odor. Formulated with diethyltoluamide it can be used as a personal insect repellent against biting flies, mosquitoes, etc. Protective action of such a combination may last from four to seven hours. Both repellents can be synergized with pyrethrins and formulated into aerosol sprays.

"Pyrocide 175 RC" is a light colored extract containing 20 per cent pyrethrins It may be formulated into aerosols or sprays. The spray is non-staining to light-colored fabrics and other surfaces, Mr. Lee said.

R. E. Daley, Union Carbide Chemicals Co., New York, discussed "What the Consumer Wants in Insect Repellents." One of the main factors increasing civilian demand for insect repellents has been the growing tendency toward outdoor living. Mr. Daley drew a sharp distinction between civilian and military requirements. A civilian repellent must be non-toxic, convenient, pleasant and easy to apply, harmless to plastics, suitably priced, and, of course, effective, he pointed out.

Danger of misuse by civilians is much greater than by members of the Armed Forces who receive explicit instructions. Protection is needed usually for a shorter period by civilians than by military personnel. The spectrum of repellency required by civilians is narrower than that for world-wide military use.

Assuming that an insect repellent is effective its sales in the civilian market are determined by the other points mentioned, chiefly convenience and pleasantness.

Mr. Daley stressed the need for further work in the search for a non-plasticizing repellent. He pointed out the incongruity of representing to the public a repellent conforming with a military specification such as "M2020" as the ideal repellent for general use.

B. Thomas Snipes of Chemagro Corp., New York, spoke on "Co-Ral," an organic phosphorus compound suggested for use in livestock sprays to control cattle grubs, lice, ticks, hornflies, screw worms, and a number of other pests. "Co-Ral" is a phosphoryl thioate; its use-dilution on beef cattle, horses, and swine is one half per cent, on sheep and goats one quarter of a per cent. Research on the compound's activity and toxicity was performed under the code name "Bayer 21/199."

"Co-Ral" livestock spray

Captions, facing page, Left to right and top to bottom

Herbert J. Mellan, Durez Plastics Division, Hooker Chemical Corp.; John R. Stoddard, Prentiss Drug & Chemical Co.; Glenn E. Doerr, Federal Varnish Division, and Martin J. Peters, Moore Brothers Co.

Harold R. Lederer, R. M. Hollingshead Corp.; A. Schenker, Procurement Division, City of Philadelphia; Richard Moseley, Hollingshead and Shaw Mudge, P. Robertet, Inc.

R. M. Troutman, Dill Co.; James W. Bampton, Krylon, Inc.; John Emmerling, Krylon, and M. Weiss, Seaboard Mfg. Laboratories, Inc. Charles E. Allderdice, Jr., Bell Co.; N. J. Gothard and A. W. Griffin, Sinclair Refining Co.

P. G. Sagarin, VCA, Inc., Robinson T. Gilbert, Fuller Brush Co. and Edward Lasner, PowrPak-ConnChem, Inc. H. W. Moburg, Rex Research Corp.; R. B. Trusler and Howard Young, Davies-Young Soap Co.

Henry Brownstein and Irving Shafiroff, Hysan Products Co., and Donald M. Hansen, R. M. Hollingshead Corp. Adolph Dingfelder, Reynaud, Ltd.; A. L. Saeks and Norman E. Wilson, Puro Co.

John W. Hall, Jr., Mantrose Corp.; Phillip H. Harris, Mac Lac Co. and Reuben Landau, Beacon Co. H. C. Hommel, Dow Chemical Co.; H. R. Suter, Wyandotte Chemicals Corp., and A. James Coulter, Gulf Oil Corp.

Left to right and top to bottom: Jack Kaestner, Acme Chemical Co.; Michael Lemmermeyer and Don E. Lavelle, Aromatic Products, Inc. A. E. Budner, S. C. Johnson & Son, Inc., Alfred A. Mulliken and H. W. Hamilton, CSMA. M. Kimmel, Aeropak, Inc., Donald D. Menhenett, Eveready Pressurized Products Corp., and Thomas D. Johnson, Jr., Freon Products Div. Robert G. Fries, Jr., Fries & Fries, Inc., and Paul Roden, Mercantile Wax Co. Herbert Lynne, Van Dyk, Inc., and Daniel Terry, Boyle-Midway. George Hartz, Prentiss Drug & Chemical Co. and Peter G. Argueso, L. M. Argueso & Co.

acts as a systemic agent against cattle grubs. A single spray treatment administered after the activity of heel fly has stopped is said to prevent the damage inflicted by the cattle grub larvae to meat and hide of the animal.

Work is still in progress, Dr. Snipes reported, on "Co-Ral's" spectrum of activity and on its possible use in the dairy field, for which it has yet to be admitted.

A new insecticide, "Barthrin," was discussed by S. A. Hall, Entomology Research Division, USDA, Beltsville, Md. The new compound is a synthetic ester of chrysanthemumic acid. The first insecticide of this type was allethrin. Furethrin and cyclethrin belong to the same group. Over 20 such esters were synthesized and screened for their insecticidal activity by W. F. Barthel and his group of co-workers at the USDA laboratories in Beltsville. Result of this work was Barthrin, first coded ENT 21557, an ester of pimpernel alcohol.

Barthrin's spectrum of effectiveness is currently under investigation. According to Mr. Hall, it exhibits good stability, low toxicity, is much lower priced than allethrin, is suitable for incorporation in household spray formulations, and may be used to impregnate paper bags to protect food against insect pests.

C. Back of Union Carbide Chemicals Co., White Plains, N. Y., spoke on the "Outlook for 'Sevin' in Chemical Specialties." Three years experience with this compound has shown it to combine broad spectrum activity with relative safety, Mr. Back stated. "Sevin's generic name is 1-naphthyl N-methylcarbamate. It exhibits its activity against certain resistant household pests, including cockroaches, houseflies, and mosquitoes, but is not active against non-resistant strains. "Sevin" is active against ticks and, in the form of a one per cent spray, against horn flies, stable flies, lice and biting flies. As a five per cent wettable powder it is effective against lice on poultry.

"Sevin's" solubility in the common petroleum solvents is low and presents a problem in formulating liquid concentrates. However, work is in progress which promises to overcome these difficulties, according to Mr. Back.

Toxicological studies are well advanced and full commercial label registration by USDA is expected by next spring. Currently "Sevin" is admitted on a non-residue basis.

A slide demonstration showing the life-cycle of cattle grubs and how treatment is carried out was the core of a talk by Don M. Baldwin, Dow Chemical Co., Camden, N. J., entitled "ET-57—Pioneer Systemic Insecticide." The compound is a purified grade of oo - dimethyl - 0 - 2,4,5 - trichloro-

Captions: Facing page, left to right, top to bottom

George E. Flemming, head of Natural Products, Ltd., Montreal, and president of the Association of Canadian Manufacturers of Chemical Specialties; I. Y. Straus, Dura Commodities Corp. and Paul J. Ammann, G. H. Wood & Co. Ed Hay, Polak's Frutal Works, Inc.; H. R. Shepherd, Aerosol Techniques, Inc., and Chris Canaday, Continental Filling Corp.

Ben Perry, Ray Hogan and Herbert Perry, Perry Brothers, Inc. Cyd Fernandez, Odorite Chemical Industries, Inc.; Peter Galena, Odorite, and Mrs. Irwin Straus, Dura Commodities Corp.

John Butler, Industrial Chemical Div., West Virginia Pulp & Paper Co.; P. D. Patrick, West Virginia and John W. Loud, Jr., Southern States Chemical Co. Jose Zevallos, Reichhold Chemicals, Inc.; Manuel Fineman, Puritan Chemical Co., and Lee M. Price, Reichhold.

John G. Plowden, Geigy Chemical Corp.; G. H. Wood, G. H. Wood & Co.; George Schumaker, Velsicol Corp., and George Isenman, Beacon Co. C. L. Weirich, C. B. Dolge Co.; Frank J. Pollnow, Jr., Vestal, Inc., and T. J. Wrocklage, Procter & Gamble Co.

Henry Eickmeyer, John Faber, Gert Keller and Bernard Wirsing, Schimmel & Co. Newell Wyatt, Hooker Chemical Corp.; John Rodda, Fairfield Chemical Div. Food Machinery & Chemical Corp., and W. J. Barrett, Hooker.

Novel twist was added, during banquet, Dec. 10, to the usual ceremony of presenting the retiring president of CSMA with a "suitably engraved watch" or some other bauble. In this case, James E. Ferris, center, receives, in addition, a king size gold pocket watch, complete with chain. Clarence L. Weirich, C. B. Dolge Co., Westport, Conn., at microphone in left photo, was in charge of the presentation. Frank J. Reilly, editor of SOAP & CHEMICAL SPECIALTIES, chains watch about Mr. Ferris' neck. After a few anxious moments, Mr. Ferris, in photo at right, receives the real thing.

phenyl phosphorothioate, test marketed under the trade name "Trolene." The compound is administered orally in a 30 gram bolus giving a dosage of 110 mg/kg for 300 pounds of body weight.

Improved weight, reduced packing house losses, and the control of other internal parasites are the benefits derived from administration of "ET-57," Mr. Baldwin declared. USDA clearance is currently being sought for low level feeding of the chemical for a period of one, two, or three weeks.

Topical application shows promise against lice, ticks, screw worms on cattle; against lice and mites on fowls; and against a number of parasites on sheep. "ET-57" has been shown to control stubborn cases of demodectic mange on dogs. Work in this field is being continued.

A technical grade of "ET-57" is produced and marketed under the trade name "Korlan," which is effective against horse and stable flies, mosquitoes, cockroaches and other pests.

Concluding speaker was Z. Z. Dworkin, Glenn Chemical Co., Chicago, who spoke on "New Attitudes Toward Insect Repellency." Mr. Dworkin stressed the need for education on the economic value of insect repellency for livestock. He showed slides demonstrating the gain in the quality and quantity of milk production through the control of stable flies. The performance of "Tabatrex" insect repellent is improved when it is synergized by insecticides such as allethrins, he said.

Preceding the "Materials Symposium" the Insecticide Division heard a talk on the "Use of Ionizing Radiation for Control of Insects in Foods," by John D. Hilchey, Pesticides Section, Quartermaster Research and Engineering Center, Natick, Mass. Effects of ionizing radiations on viability, development, reproduction, longevity, and respiration of insects indicate that this technique may hold promise for insect control. However, more work is needed to establish radiation doses, design equipment, and develop other aspects before commercial application becomes feasible, Mr. Hilchey said.

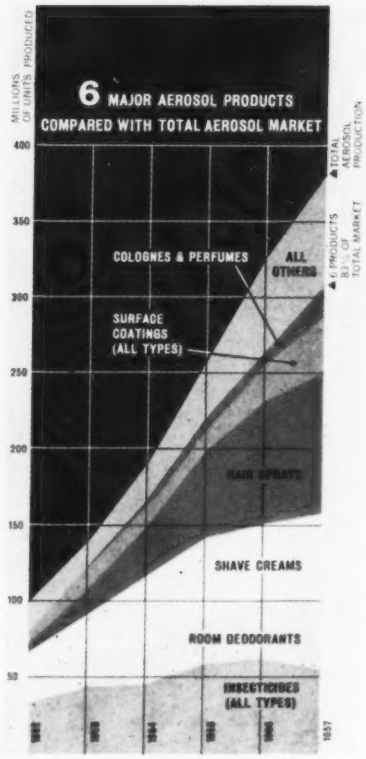
The symposium was followed by a report on the activities of the Insecticide Scientific Committee, presented by Harry L. Haynes of National Carbon Co., Division of Union Carbide Corp. A revision of the CSMA Aerosol Test Method for Flying Insects was completed and approved. This revision necessitated certain corrections in the Peet-Grady Method, which have also been accepted. Revisions to the CSMA Textile Resistance Test have been completed. Projects currently in progress include the formulation, chemical analysis, and biological evaluation of a new 1959-1962 Official Test Insecticide. It was to have been available on Jan. 1. Work on formal testing of pressurized space sprays continues.

New programs include, among others, a survey directed toward standardization of livestock spray testing procedures. A mixed field strain of resistant flies will be reared and studied. Standard liquid and aerosol insecticides and repellents will be tested on this strain as well as on the non-resistant CSMA strain.

Aerosol Division

Approximately 81 per cent of 47 million American households purchased one or more aerosol products between March and August, 1958. This figure was reported by A. H. Lawrence, Jr., of the Freon Products Div., E. I. du Pont de Nemours & Co., Wilmington, Del., in his discussion of the 1958 Du Pont Survey of consumer purchases of aerosol products. Mr. Lawrence made his report during the first session of the Aerosol Division, the morning of Dec. 9.

Objectives of the survey were to determine what aerosol products were purchased for household use and by which family member during the six months period. 2500 homes were canvassed which were representative of the 47 million



U.S. households of all types, except those without an adult female member.

Of the 16 aerosol product categories mentioned by interviewers, the top six, which accounted for 83 per cent of all aerosol production, are: insecticides, room deodorants, hair sprays, shaving cream, colognes and paints and lacquers. Percentages given for the four top product classifications by Mr. Lawrence are: insecticides and hair sprays, 45 per cent; room deodorants, 39 per cent; and shaving cream, 31 per cent.

Mr. Lawrence noted that aerosol usage tends to increase in higher income and better educated groups. In most cases, the wife and mother of the family purchases aerosol products, according to survey findings.

W. Earl Graham, Clayton Corp., St. Louis, chairman of the Aerosol Division, presided during this session. In his address as chairman of the division he reviewed its progress over the past year, as well as noting that 1958 marked the

(*Turn to Page* 77)

CHLORDANE facts

. . . that can help you sell more in 1959!

ONE EASY APPLICATION KILLS LAWN INSECTS and CONTROLS CRABGRASS

Chlordane is America's leading lawn and garden insecticide. A single application will kill lawn insects and control crabgrass. Or, if crabgrass is not a problem, Chlordane can be used at a lower dosage for insect control alone. Here are a few of the many lawn and garden insects that Chlordane controls:

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MOSQUITOES

CRICKETS

FIRE ANTS

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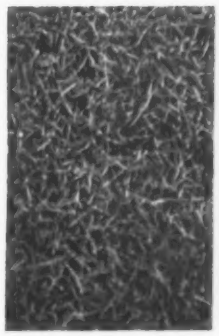

Chlordane kills crabgrass before it starts! Shown are test plots at a state university, photographed August 23, 1958. The plot on the left was treated with Chlordane March 11, 1958. Chlordane prevented crabgrass growth. The untreated plot on the right is heavily infested with crabgrass.

CHLORDANE HAS BOTH ESTABLISHED PREFERENCE AND NEW POTENTIAL—Chlordane has a unique market position. It is the only known insecticide that kills crabgrass, and it is the only chemical that has both an established preference and a tremendous new potential. Chlordane has been in use more than twelve years. It is the active ingredient in many insecticide formulations that are sold under various trade names. You will find it listed in the lawn and garden insect control literature published by the U.S.D.A. and your state extension service. Its record of safety and residual effectiveness is without parallel. Now, Chlordane has become a key product in the booming crabgrass control market. These conditions will more firmly establish Chlordane as the "Sales Leader" in your garden chemicals line.

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Find out about the Chlordane CASH BONUS PLAN for distributor and formulator salesmen!

CHLORDANE GIVES YOU 100% SALES SUPPORT—So called "dealer support," for many products, means national ads, a counter card and one or two folders. Chlordane dealer support goes far beyond this. Your dealers are offered a complete packaged program. It includes a nine lesson "Insect Control Refresher Course" that enables them to conduct sales training programs. There is a monthly information service that helps them sell all types of garden chemicals. There are extensive and varied promotional materials. In addition, there is a strong national advertising program for Chlordane. Newspapers in 45 top lawn and garden markets, plus the top home and gardening magazines will be used to promote Chlordane in 1959. Make sure all your salesmen know about the Chlordane "100% Sales Support" program!

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Special Issue—S1/59

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By Irwin Y. Straus

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TEST REPORT BY INDEPENDENT LABORATORY

TEST PERFORMED:	RESULTS WITH DUROXON FLOOR POLISH 18% SOLIDS:
Product Appearance	White, translucent.
Water Resistance	Excellent within 4 hours
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Leveling on Asphalt, Rubber, Linoleum and Vinyl tile	Excellent
Oven Stability, 125°F	OK minimum 30 days
Freeze-Thaw Stability	OK three cycles

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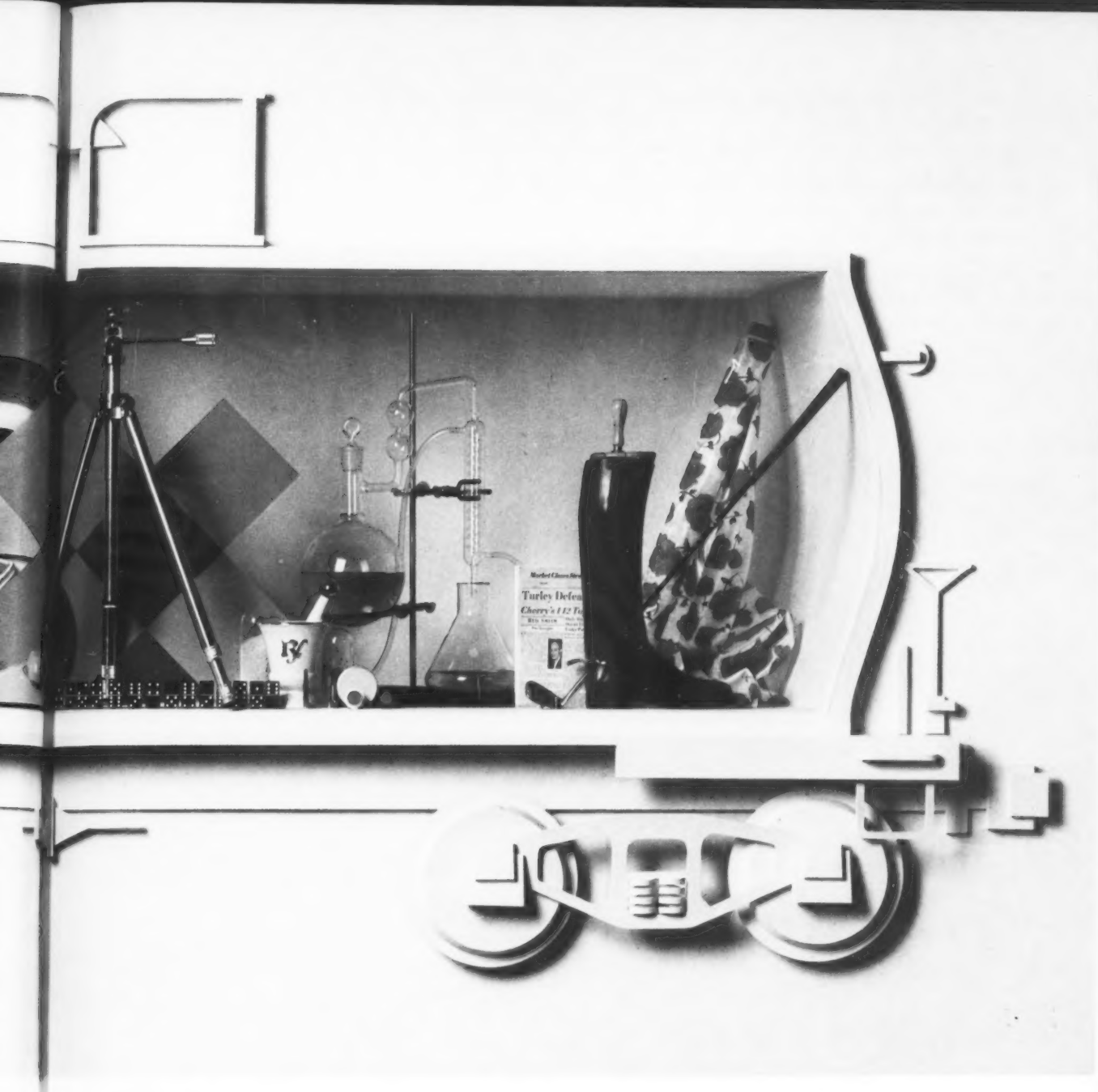

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CSMA Meeting

(From Page 70)

10th anniversary of its formation.

John J. Buchanan of Continental Can Co., Chicago, and chairman of the division's scientific committee, reported on its activities during 1957 and 1958. He went over the functions of each subcommittee and the work it had done. A highlight of subcommittee accomplishments included the investigation by the safety committee of methods for the disposal of used aerosol containers.

Investigation of the hair spray "situation" as touched off by the article in the *New England Journal of Medicine* last March was the chief activity of the personal products committee, according to the report of Morris J. Root, G. Barr & Co., Chicago. Mr. Root noted that the public press went after sensationalism in reporting the article and in many instances misquoted the three doctors who wrote the article. After requesting formulation data from hair spray manufacturers, the Food and Drug Administration ran tests on animals and concluded that there were no toxicological ill-effects from the inhalation of hair sprays, according to Mr. Root.

"The Role of Fragrance in Aerosol" was discussed in a paper by E. R. van Liew and Victor DiGiacomo, Givaudan-Delawanna, Inc., New York, and presented by Mr. van Liew. In it they reviewed fragrance in the life of man since about 1500 B.C. when incense was burned as a means of medication, through the Middle Ages, when aromatic herbs were burned for their therapeutic value and the ladies of the Crusaders used deodorants of a sort, into the Age of Elegance of Louis XIV, when nobles doused themselves in perfume for a pleasant body odor, and through today, when the public is very aware of unpleasant odors and accepts the need for daily baths.

According to the authors of the paper, those aerosol products with the most pleasant odors are the ones that sell best. The success of aerosol shave creams, for example, is due mainly to their pleasant scent. There is more to come in the future, Mr. van Liew predicted, as he forecast aerosol nail polish, blood plasma, aerosols in air conditioning, "mood fragrances," and even sprays to sanitize the air in subways and public buildings.

Clarence P. Clapp of Western Filling Corp., Los Angeles, presented a paper on "Food Aerosol Custom Filling" in which he discussed the function of the filler in the food field. He reviewed the history of food aerosol filling and stressed the importance of the close relationship between the technical aerosol man and the technical food man. In a step by step discussion he went through the details involved in a food aerosol product from its creation to its appearance on the grocer's shelf. Mr. Clapp's paper will appear in full in a future issue of *Soap and Chemical Specialties*.

"We're selling packages, not products, today," stated Joseph J. Tomlinson, General Chemical Division, Allied Chemical Corp., New York, in his discussion of "The Impact of Aerosols on Advertising of Consumer Products." Pointing out that aerosols are being highly advertised in all media with the largest percentage of the advertising budget going into television, he concluded that the public is very much aware of aerosol products today. Advertisements are tied in with programs of all types and vast audiences are being reached also in national consumer magazines. An expenditure of $40,000 can reach 18 million people at "one clip" and advertisers of aerosol products make use of such advertising "buys", he declared. The fact that aerosols are easily demonstrated is a great advantage in their advertising, according to Mr. Tomlinson, who concluded by stating that the "impact of aerosols is being felt everywhere."

Mr. Lawrence's annual aerosol survey report concluded the morning session of the Aerosol Division.

Soap, Detergents Div.

A symposium on various applications of anionic surface active agents highlighted the opening session of the Soap, Detergents and Sanitary Chemical Products Division,, the morning of Dec. 9. Clarence L. Weirich, C. B. Dolge Co., Westport, Conn., chairman of the division presided. The moderator was Anthony M. Schwartz, Harris Research Laboratories, Inc., Washington, D. C.

In discussing "Anionic Surface Active Agents in Heavy Duty Household Detergents" C. C. Tillotson of Procter & Gamble Co., Cincinnati, pointed out that anionics are much more widely used than other types of surface active agents in heavy duty household products. Alkyl benzene sulfonates and alkyl sulfates are the most widely used he said. Mr. Tillotson's paper will appear in full in the February issue of *Soap & Chemical Specialties*.

Dr. John B. Davidson of Cowles Chemical Co., Skaneateles Falls, N. Y., reported that anionics are the preferred surfactants in heavy duty industrial cleaners because of their superior wetting out power on metal surfaces, greater dispersing power, and high susceptibility to "building." His paper appears in full beginning on page 47 of this issue of *Soap & Chemical Specialties*.

Anionics in toiletries and cosmetics were discussed by John M. Longfellow of Colgate-Palmolive Co.'s research and development department, Jersey City, N. J. He pointed out that

"For use in toiletries, a surfactant's physical form, cost and chemical stability are equally as important as they are in other applications. Its 'esthetic' attributes—color, odor, and taste—are especially important, and its toxicological properties must be well understood and appropriate. Uniformity of commercially offered surfactants becomes very important because of the effect of the proportions of molecular species present on such properties of the final product as emulsion stability, foaming, clarity and viscosity.

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More than 2,000,000 gallons of these cattle sprays were bought by dairy farmers last summer. These are just a few of the different brands that had one important ingredient in common, an ingredient that meant ***extra sales*** and ***extra profits.***

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In spite of the cool summer in 1958, formulators all over America reported sharply increased sales for livestock sprays because of TABATREX. Dairymen reported higher repellency—greater protection from biting flies—greater milk production—greater profits—than ever before. Dealers reported excellent consumer acceptance and a more active demand for livestock sprays than they had ever experienced. They attribute this increased volume to ***better cattle sprays backed by aggressive promotion!***

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"Shampoo formulation is undoubtedly the problem which has felt the greatest impact due to anionic surfactants. The goal of creating shampoos to eliminate the disadvantages of soap and retain its advantages has attracted numerous workers who have contributed advances in formulation and testing techniques. 'Toilet soap' formulation on syndet or part syndet basis has been a refractory problem, but adequate solutions now seem at hand. Anionic syndets in dentifrices required concomitant reformulations but have now completely replaced soaps, and some of them offer promise of products having further advantages to the consumer. In many of the other areas of cosmetic research anionic syndets have afforded new approaches to solving problems of solubilization, emulsification, penetration and the like, and study of their application continues at a rapid pace."

Although early light duty detergents were spray-dried products, the majority of present-day "truly" light duty products are liquids, W. M. Bright and L. F. McKenney of Lever Brothers Co., Edgewater, N. J., declared in their paper, which appears in full beginning on page 43 of this issue of *Soap & Chemical Specialties*.

Aerosol Awards

Presentation of plaques to representatives of firms whose products were judged best in the annual aerosol package contest sponsored by the Aerosol Division of CSMA took place at the group luncheon, Dec. 9. Frederick G. Lodes, Lodes Aerosol Consultants, Inc., New York, chairman of the contest committee presented the awards to the winners, photographs of which appeared in the December issue of *Soap & Chemical Specialties*. Following this, Osgood V. Tracy, vice-president of Standard Oil Co. of New York, spoke on "The Challenge of Competition."

Mr. Tracy pointed out that chemicals are "crowding" the automotive industry for fourth place in sales in the nation's economy. He predicted continued growth for the "nation's fastest growing industry" and intensified competition — extending from the research laboratories to improvements in deliveries and better packaging.

At a general session the morning of Dec. 10, Dr. Leona Baumgartner, Commissioner of Health of the City of New York, again called upon the chemical industry to help educate consumers as to safe use of household chemicals. Noting that the "average household today has the equivalent of a chemical laboratory in its kitchen and household cabinets," Dr. Baumgartner declared that protection of the public must be the joint responsibility of government and chemical manufacturers. She pointed out that under provisions of its own chemical labeling law, tentatively approved in November and scheduled for adoption early next year, New York City will conduct its own study of labeling practices, with particular emphasis upon analysis of consumer reaction to precautionary labeling.

Other panelists included Dr. Harold Magnuson, Medical Director, special health service program, Department of Health, Education, and Welfare, Public Health Service, Washington, D. C., and the Honorable George P. Larrick, Commissioner of Foods and Drugs, Department of Health, Education and Welfare, Food and Drug Administration, Washington, D. C. Mr. Larrick discussed "Safeguarding the User of Chemical Specialties."

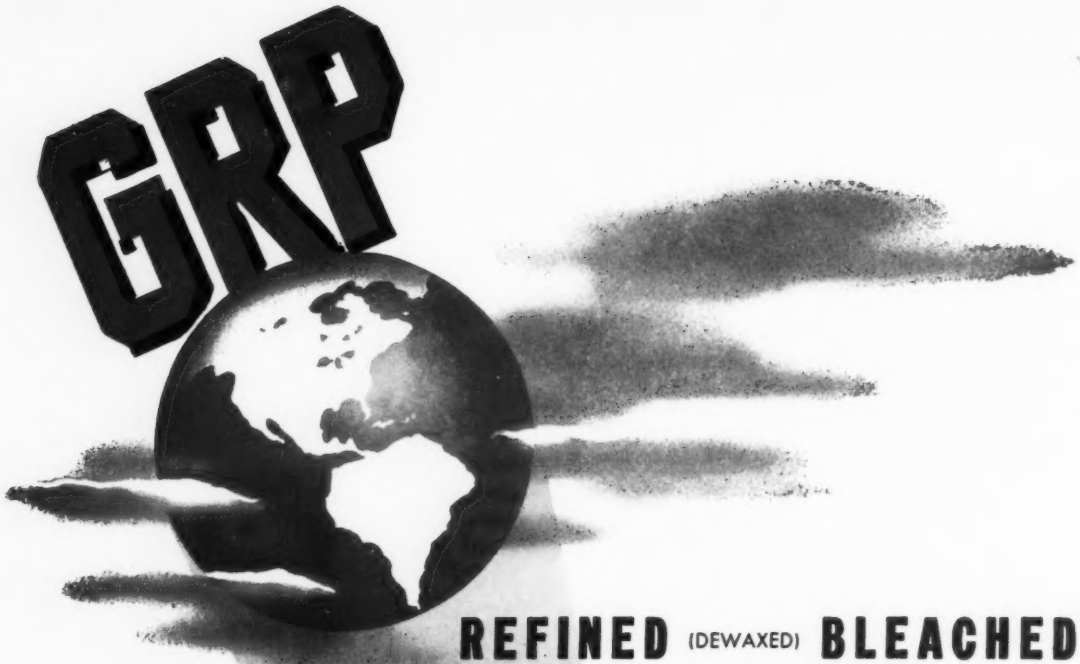
Automotive Division

A. James Coulter of Gulf Oil Corp., Pittsburgh, and chairman of the Automotive Division began this division's proceedings with a forecast for 1959. Next year's project or problem, for the Automotive Division, he stated, is legislation. Many bills, including those covering brake fluids, anti-freeze, and hazardous product labelling are up for consideration by state and federal legisiatures. The answer to problems in these areas, said Mr. Coulter, is the meeting of interested groups like CSMA to work out model bills and arrive at solutions. He called attention to the fact that a model brake fluid bill has been prepared by CSMA.

Motivational research can explore people's thinking, define a brand image, and spell out an ideal brand image and make recommendations to the manufacturer. These points were offered by John Kishler of the Institute of Motivational Research, Inc., Croton-on-Hudson, N. Y., in answer to the question asked in his paper "What Can Motivational Research Do for the Manufacturers of Automotive Chemical Specialties?" Most motorists think of automotive chemical specialties only in times of car trouble, he stated, and thus negatively. One exception, however, is anti-freeze manufacturers who have done an effective job in making motorists aware of their product and the consequences that may result in not using it. Usually motorists depend on their garage or gas station for automotive chemical specialties and expect the manufacturer of these products to exercise a great deal of scientific know-how in their manufacture. However, Mr. Kishler noted, the service station attendant or other "professionals" who purchase these products are just as easily influenced by a brand image as consumers.

Reduction of weight is one of the chief advantages in the adoption of aluminum engines, said James M. Smith of Aluminum Company of America, Cleveland, in his paper "Which: Aluminum Engine or Absentee Passenger?" This lighter aluminum engine would have the additional advantages of lighter supporting parts and tires, would permit a more favorable weight balance, better braking, less horse power, better performance, and perhaps a rear mounted engine.

Tracing the use of aluminum in automobiles as far back as 1898, Mr. Smith noted that about 300 million pounds of the metal is consumed by the auto industry in a 6 million car year. Currently, however, since the heaviest part of the automobile is the engine, the



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absentee passenger is under the hood, Mr. Smith stated. Other important considerations in the adoption of aluminum engines are that they are easier and cleaner to machine compared with cast iron, engine walls can be less dense, costs can be reduced for the entire car because of lighter parts, and lower temperatures are produced.

"Can Automotive Engine Coolants Keep Pace With Future Demands?" was asked in a paper presented by Leonard C. Rowe of General Motors Corp., Detroit. He reviewed the effect of water quality on corrosion and inhibition, re-evaluated inhibitor systems, and outlined qualifying tests in an attempt to answer this question. Because of the demand for economy and the rapid advance of horsepower, a new premium has been placed on automotive body weight. Since the next step is the eventual use of light metals in engine construction, Mr. Rowe concerned himself with finding answers to problems of whether or not our present coolant and anti-freeze will qualify for use in the cooling systems of such engines or can they be modified to do so. He stressed the need for combination-type inhibitors that are incorporated in anti-freeze. Water, he noted, is still regarded as the best coolant available but without much regard for its impurities.

Automatic transmissions, employed on 25 per cent of the automobiles manufactured in 1949, were used on 80 per cent of 1958 model cars, Raymond I. Potter of Ford Motor Co., Dearborn, Mich., stated in his paper, "Trends in the Development of Automatic Transmissions." Approximately 12 million gallons of transmission fluid are used yearly in these mechanisms which have about 750 parts. Requirements of this transmission fluid are that it must resist fluid thinning at high temperatures, fluid thickening at low temperatures, it cannot have a viscosity loss through mechanical sheer, must possess anti-foam and anti-rust properties with no copper corrosion, must have resistance to rubber seal deterioration, and resist sludge and varnish formation. Looking toward the future, Mr. Potter forecast higher viscosities for transmission fluids with greater resistance to mechanical sheer. He also foresaw the problems in meeting higher temperatures in automobile transmissions.

CSMA Survey Covering Waxes and Floor Finishes Shipments—1956-1957

Shipments of floor products designed for use in maintaining floors in commercial, industrial, institutional, public, etc. buildings reported by 101 companies. Sales to all government agencies (federal, state and city) are included. Sales of retail packages (shelf goods) are not included.

		Grand Total Your Own Brand and Private Label		
		1956	1957	Per Cent Change
1. Wax Emulsions				
(Self-Polishing)				
Less than 16% non-volatile	(Gals.)	7,713,257	7,932,776	+2.85
16% and greater non-volatile	(Gals.)	2,074,098	2,150,202	+3.67
2. Resin Finishes				
a. Aqueous	(Gals.)	1,435,670	2,179,066	+51.78
b. Alcohol (Does not include shellac varnishes)	(Gals.)	131,174	119,677	—8.77
3. Liquid Floor Cleaners and Wax Strippers				
Less than 20% non-volatile				
Soaps, with or without builders	(Gals.)	1,958,348	2,142,508	+9.40
Synthetics, with or without builders	(Gals.)	2,935,710	3,290,124	+12.07
Soap and synthetics mixed, with or without builders	(Gals.)	2,391,356	2,834,821	+18.54
20% and greater non-volatile				
Soaps, with or without builders	(Gals.)	1,304,323	1,306,146	+0.14
Synthetics, with or without builders	(Gals.)	264,209	300,080	+13.58
Soap and synthetics mixed, with or without builders	(Gals.)	624,324	734,405	+17.63
4. Floor Sealers and Gym Finishes				
a. Type: Non-aqueous, oleo-resinous, petroleum solvent	(Gals.)	2,326,089	2,247,077	—3.40
b. Type: Lacquer and others	(Gals.)	166,627	176,905	+6.17
5. Solvent Type Waxes				
a. Liquid waxes	(Gals.)	648,218	711,145	+9.71
b. Paste waxes	(Lbs.)	2,231,855	2,155,483	—3.42
6. Paste Wax Emulsions	(Lbs.)	573,561	642,535	+12.03
7. Dust Mop Treatment (Does not include floor oils)	(Gals.)	1,052,040	1,225,041	+16.44
8. Sweeping Compounds	(Lbs.)	25,551,500	28,217,418	+10.43

Waxes & Floor Finishes

The Waxes and Floor Finishes Division held its opening session on Tuesday afternoon, Dec. 9, under the chairmanship of C. S. Kimball, Foster D. Snell, Inc., New York. In his opening remarks Mr. Kimball briefly outlined the need for an educational campaign for vinyl floor treatment. He pointed out the need for funds to carry the message to the public and convince it of the need for waxing such floors, contrary to certain claims made by the manufacturers of vinyl flooring. The idea was opposed by Irwin Y. Straus, Dura Commodities Corp., who felt that it was not for the polish manufacturers to finance and execute such a campaign, since they would be suspected of self interest by the public. Maurycy Bloch of Warwick Wax Co., New York, expressed agreement with the purpose of such a campaign.

The technical program opened with a paper by Irwin Y. Straus describing "A New Simplified Technique for the Manufacture of Dry-Bright Wax Emulsions." This paper appears in full beginning on page 145. A labora-

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It's no mere play on words. Tests show that the gloss of Epolene based floor polishes actually increases with wear. On asphalt tile, for instance, the gloss of a typical Epolene polish rated 50%* immediately after application – an excellent rating for any floor polish. Following a normal period of wear and rebuffing, however, its gloss had increased to 65%.

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tory demonstration of the process was presented concurrently with Mr. Straus's report, as well as slides for those who could not see the laboratory scale procedure.

Variations in sensitivity to temperature changes observed in different vinyl polymers can serve to screen these compounds for specific industrial applications, according to a paper by George L. Brown and Richard E. Zdanowski, Rohm & Haas Co., Philadelphia. In addition to thermoplasticity characteristics, crystallinity and optical properties can also help assess the usefulness of individual vinyl polymers in floor product formulations and other uses.

Among vinyl resins acrylic esters are claimed to offer the widest range of properties attractive in floor wax ingredients. Since acrylics are currently not available as waxy materials, polyethylene may be added to acrylic formulations. Such combinations would combine the advantages of acrylics with the polishability and self healing properties of waxy materials. Entitled "Acrylic Emulsion Polymers—Their Uses and Formulating Principles," this paper will appear in full in a future issue of *Soap and Chemical Specialties*.

Isidore Shafiroff, Hysan Products Co., Chicago (formerly R. M. Hollingshead Corp.), spoke on "Laboratory Correlations and Scoring of Floor Service Tests." When evaluating floor polishes by a scoring system one must keep the end use of the product in mind, he said. The housewife values most highly the gloss properties and ease of removal, whereas a hospital may place anti-slip properties first, and an industrial consumer may have other requirements. Five polishes evaluated in laboratory tests and also in floor service tests were reported on by Mr. Shafiroff. Polishes included shellac and polystyrene combinations, with solvent contents ranging from 12 to 17½ per cent. Films cast from these compounds were tested on different substrates, such as black rubber flooring, heavy brown linoleum, vinyl and rubber tiles, and "Kentile" floors. Gloss, slip resistance, yellowing, water spotting, and leveling were among characteristics assessed in these experiments. Values established in the laboratory and floor service performance showed close approximation for three of the five polishes used.

The session was concluded by Donald E. Whyte of S. C. Johnson & Son, Inc., Racine, Wis., who presented the report of the Waxes and Floor Finishes Division's Scientific Committee. The subcommittee on raw materials specifications is working on a standard for carnauba wax; tests are being continued on the effect of waxing on vinyl floors; and work on the test methods manual continues, he explained.

Disinfectant & Sanitizers

The joint session of the Disinfectant and Sanitizers with the Insecticide Division on Wednesday afternoon, Dec. 10, opened with a paper on "Irradiation of Food," by N. W. Desrosier, U.S. Quartermaster Corps, Radiological Laboratory, Chicago, Ill. Although much has been learned about bactericidal, fungicidal, and insecticidal effects of radiation on foodstuffs, many problems have yet to be solved. These include the risk of adverse changes in flavor, color, and consistency, which may occur in the foods. Undesirable microbiological changes may be caused. Packaging materials must be chosen with the same dangers in mind.

"Why More Laws" was the subject chosen by Justus C. Ward, head of the pesticide regulations section of the U.S. Department of Agriculture, Washington, D.C. His answer was simple: "Accidents create demand for more laws." He documented this theory by the history of the food, drug, and cosmetic legislation not only in the United States but all over the world. Whenever spectacular accidents occurred and captured public attention, legislation followed almost immediately. In the last decade the legislative trend has been toward prevention. Today the manufacturer bears the burden of proof that his product is safe. Since the advent of legislation, the rate of accidents has been significantly but not sufficiently reduced, according to Dr. Ward. Only after establishment of a better safety record with poisons can the trend toward more legislation be expected to level off.

In a discussion following Dr. Ward's talk it was stressed that laws alone will not solve the problem of accidental poisoning. Labels are the first step in the education of the public but must be supplemented by moving pictures, TV, and other channels carrying the same message.

Insect-borne diseases of man and beast are a world-wide international problem, according to Richard W. Fay, Communicable Disease Center, Public Health Service, Savannah, Ga. Dr. Fay spoke on "Application of Insecticides to Insect-Borne Diseases." He outlined the see-saw battle against individual insect vectors of such scourges as plague, typhoid, cholera and others, naming in each instance the specific insecticides and their resistance status. Dr. Fay's paper will apppear in full in a future issue of *Soap and Chemical Specialties*."

The final paper in the joint session entitled, "Is There a Market for Combination Insecticide-Disinfectant Formulations?", was presented by Joseph E. Lee, McLaughlin, Gormley King Co., Minneapolis. The pros and cons of existing combination products were considered. These include insecticide-bactericide sprays, both liquid and pressurized. Incorporating a chlorinated hydrocarbon and a bactericide in the oil phase, these products are designed to treat garbage cans, but have so far not found very wide-spread acceptance.

Combination products have been successful in the pet field as shampoos, synergized with pyrethrins and as sprays incorporating

(*Turn to Page* 181)

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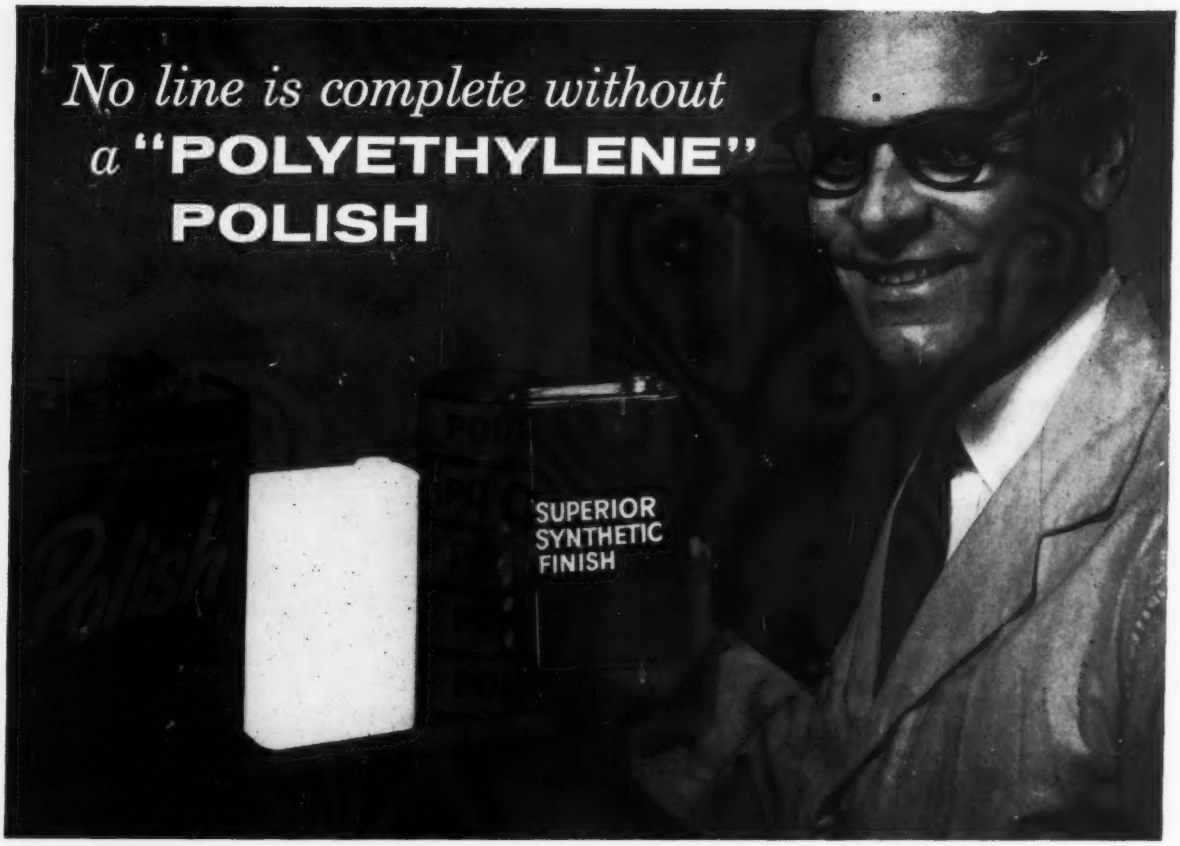

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Potential Markets for

Insecticide - Disinfectant Combinations

By Joseph E. Lee*
McLaughlin Gormley King Co.
Minneapolis, Minn.

DEVELOPMENT of multi-action products such as cleaner-sanitizer and wax-insecticide combinations has stimulated interest in the feasability of insecticide-disinfectant and insecticide-bactericide combinations.

At a recent C.S.M.A. Program Committee meeting interest was expressed in this subject. It was suggested that a paper on this subject would be in order. Subsequently inquiries were directed to several authorities in industry and government and the subject proved to be one of common interest and discussion. Some of the persons consulted were not in favor of these combinations. Others favored the idea but thought the difficulties were too great to be overcome. It is safe to conclude, however, that all the authorities considered the subject worthy of thought.

The author wishes to express personal gratitude to P. G. Bartlett, Claude D'Angio, Chester Filter, M. N. Fineman, Harold Friedman, Melvin Fuld, and E. M. Swisher from industry. Government men have likewise been most helpful in preparing this paper. The gentlemen in the U.S.D.A. to whom we are indebted for ideas and criticism are Mr. J. T. Coyne, Dr. A. K. Somers, Mr. S. C. Billings and Mr. L. S. Stuart. The thoughts and suggestions of all these men are woven into the body of this talk in so many places and so many ways that it is impossible to acknowledge their individual contributions at each instance. Most sincere thanks are extended to each of them for their many suggestions and criticisms.

Before launching into the subject, it should be understood that the combinations discussed in this paper may have good potential but that we must make haste slowly since the pitfalls to most of the combinations are wide and deep. Perhaps in some cases the pitfalls are insurmountable with the chemicals presently available. The views and ideas expressed here are individual views and do not carry the sanction of governmental agencies nor are they an expression of my company's position, nor the position of the companies of any of the men who have contributed to this paper.

Products on the Market

Combination insecticide-bactericides are presently sold as liquid and pressurized sprays. Examples of these products are garbage can sprays which generally incorporate a chlorinated hydrocarbon and a bactericide in the oil phase. These products may be used to treat garbage cans in residences or they may be used in plant sanitation work around garbage disposal areas. They offer control of insects, particularly flies, and odor-causing bacteria. Their use has not been extensive. Perhaps as liquid sprays they could be used to a greater extent in plant sanitation work. One of the drawbacks in this use is that application must be made each time refuse is added. Another disadvantage is the possibility of applying sublethal dosages of insecticide with the resultant build-up of resistant fly populations.

Combination products have scored successes in the pet field. Pet shampoos containing synergized pyrethrum have been offered for several years. The consumer rids his dog of fleas and dirt in one application. Also in the pet field, sprays containing an insecticide, and repellent in the oil phase are available. The consumer can kill fleas and lice, repel biting flies, and destroy odor-causing skin bacteria with one application. The pet field offers a good potential to firms merchandising consumer goods rather than industrial products.

Other combination items presently available are wax and insecticide formulations, bactericide-insecticide combinations in aerosols, and many multi-action cleaner-santizers not in the province of this paper.

Possible Combinations

The next series of combinations comprises a group that merits consideration but is not presently available. A combination disinfectant-insecticide for use on the walls of milk houses in dairies could find a waiting market. The purpose in this case would be to develop a single product for disinfecting the walls and either killing or repelling flies from the treated surfaces. Since disinfectants are active only in the water phase the combination would have to be either water soluble or an emulsifiable concentrate suitable for use

*Paper presented at the 45th annual meeting of Chemical Specialties Manufacturers Ass'n., New York, Dec. 10, 1958.

*Formerly Gersthofen
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with water. Frequent applications of such a product would be necessary. Consequently, an insecticide or repellent with short residual life would be suitable.

Good potential outlets for combination specialties are the many rendering plants around the country. These plants are constantly harassed by their neighbors about the many flies around them and the odors coming from them. The answer could be provided by a detergent-repellent product used inside on floors, walls and working areas and a disinfectant-insecticide for treating the barrels and conveyors in which inedibles are stored or transported. Frequent use of these products would reduce the odor problem and the fly problem both inside and outside the plants.

Combination products may find a waiting market around military installations. Latrines are subject to stringent inspection. They could be regularly washed with single action detergent-disinfectant-insecticide formulations. Perhaps a bactericide-insecticide or repellent combination would be useful in latrines also. Flies could be eliminated and odor-causing bacteria destroyed in the same operation. The garbage disposal areas could be treated with an insecticide-bactericide combination. The Services have always been actively interested in products that promote cleanliness and sanitation at service installations. These combinations would receive a sympathetic hearing if presented to the authorities, the author believes. Hospitals and other institutions should provide a ready market for a bactericide-insecticide or repellent formulation in some areas and an insecticide-disinfectant in other areas.

Another interesting potential industrial application is in wool treatment. It is conceivable that woolens could be disinfected and treated to impart moth-resistance in one application. Perhaps, too, premises could be decontaminated with a combination fumigant possessing insecticidal and germicidal powers.

Benefits of Combinations

These are some of the products and potential markets that warrant scrutiny. But what are the advantages of such combinations? Estimates indicate that 95 cents out of the maintenance dollar are spent on direct labor. If your customers can do two, or possibly, three jobs in one operation the labor savings would be substantial.

A new approach invariably gathers some new customers. Perhaps these multi-action products will give salesmen a new approach that will open some doors that have previously been closed to them. It will help them to develop a complete sanitation program for their customers with a minimum inventory in sanitation products. Provided these combinations are correctly formulated the customers should benefit because a more complete sanitation job will be accomplished. All of us are familiar with customers that are strong in one phase of sanitation and weak in another. Multi-action products may help these customers balance their sanitation programs.

Formulation Problems

We have been essentially optimistic up to this point. Now the pitfalls of combination products must be considered in detail. The greatest difficulties occur in formulating these items. Chemical compatibility is of prime concern. In the case of garbage can sprays and pet sprays, where commercial combination products are available, this difficulty has already been considered and solved. Certainty of compatibility established by shelf-life testing and actual product use is the only safe approach to this problem.

The disinfectant-insecticide or repellent field requires careful investigation. Disinfectants must be in the water phase to disinfect. Industrial insecticides, with one exception, "Dipterex," a product of Chemagro, are not water soluble to my knowledge. Nor do many of the disinfectants serve as solvents for insecticides. Therefore, emulsifiable concentrates with a common solvent that is not objectionable to the consumer must be sought. Further problems arise at this point. First of all, few solvents that meet these specifications exist and those that do are fairly high priced.

Possibly the aforementioned problems will be of interest to some of the basic manufacturers. There could well be interest in germicides that are effective in the absence of water as well as insecticidal materials that are soluble and stable in the water phase.

Another problem is balancing the formulation so that sufficient repellent or insecticide as well as disinfectant is present in the diluted emulsion. Frequently disinfectants are used at the rate of one tablespoon or less to the gallon. So that the consumer will apply the proper amount of toxicant and disinfectant perhaps our normal dilution levels for both disinfectants and insecticides would have to be modified. Approaching this problem of balance from another angle, we must be certain that the right amount of each chemical is present so there will be no waste. Obviously, the economy of dual purpose products would be lost if we wasted a good portion of either chemical to do an effective job with the other part of the formulation.

Flexibility of specific products might be reduced since it is unlikely that the formulation will lend itself to various dilution levels for different purposes. Costs must be reviewed. It is my understanding that the cost per gallon of ready to use disinfectant is generally in the neighborhood of 15 cents. The addition of sufficient chlorinated hydrocarbon in the form of DDT is economically feasible since DDT is a relatively low-priced chemical. Before the cost picture or combinations of repellents and disinfectants can be completed, the amount of repellent necessary for day-to-day protection will have to be determined.

(*Turn to Page* 192)

"but don't all aerosols go 'pfft'*?"*

Fussy buyers (there's one born every minute) say, "don't all aerosols go 'pfft'?" Rhodia can help you satisfy the fussy customers' drive to be especially different. A Rhodia scent can give your aerosol cologne or perfume the product value that keeps the package sold. Specifically, Rhodia can make a cologne or perfume compound compatible with any aerosol design, propellent or container material. But even more important for the long competitive push, Rhodia can deliver the scent that stands out in fragrance, feel and stability.

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Much of the development work in aerosol products has been done in the laboratory of the contract loader. Photograph above was taken in the new lab of Thomassen of Pennsylvania, Inc., Norristown, Pa., contract aerosol loader.

Aerosol Formulation

By Grant L. Armstrong*,
Technical Service Representative,
"Freon" Fluorinated Products,
Du Pont Co. of Canada (1956) Ltd.

Part II

RECENTLY, it has been found that water in oil emulsion systems can be formulated to give either coarse, wet, residual type sprays, or fine, dry, space type sprays. Dr. P. A. Sanders of the "Freon" Products Laboratory of E. I. du Pont has done much development work in this field. Such formulation methods make it possible to use either or both water and oil soluble active components. In many cases, the use of water in the formulation results in a cheaper product than is possible with completely miscible spray systems.

Usually, a definite procedure must be followed when preparing water in oil emulsion products. Water soluble and oil soluble active components must first be dissolved in the appropriate emulsion phase. A suitable oil solution emulsifying agent is added to the oil phase, which may be a mineral or vegetable oil or one of the high boiling propellants such as "Freon-115" and "Freon-113." The addition of the water phase to the oil phase can then be carried out with sufficient agitation supplied to produce the required emulsion characteristics. Once the water in oil emulsion is formed, "Freon" propellants may be added to give the desired spray properties.

Many different surface active agents have been evaluated and have been found to create various effects upon the final emulsion product. Emulsions have been prepared which will result in a uniform dispersion of the water in the oil phase for several weeks before creaming or settling of the dispersed phase occurs. In other cases, uniform emulsions will last only a few seconds. Creaming or settling does not necessarily indicate that an emulsion has broken down, and usually slight agitation will reform a uniform dispersion of the water particles. Where actual emulsion breakdown does occur, more severe

*Paper presented during first annual meeting, Association of Canadian Manufacturers of Chemical Specialties, Montreal, Nov. 14, 1958.

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U.S.I. CHEMICAL NEWS

Jan. ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1959

Market for Rigid Urethane Foams Growing Rapidly

While rigid materials accounted for less than 10% of the total polyurethane foam market in 1957, 1958 figures are expected to show an increase to more than 20% of the total market. The Society of the Plastics Industry feels that by the end of 1959, 30-40% of the demand will be for the rigid foams.

The material is proving ideal for industrial and home insulation. Packaging applications are expanding. Makers of marine equipment are using the rigid foams for buoyancy. Military applications include radiation shields and heliohuts. More and more, structural panels and laminates are being made with rigid urethane foams.

Users can buy fabricated foam or they can foam the material themselves in place, by employing either molding or spraying techniques. Special equipment has been developed for spraying urethane polymer onto overhead, vertical or irregular surfaces. It foams and sets in place rapidly to give a rigid coat which will not slip, sag or fall away.

Rigid urethane polymers are formed by mixing two chemical components—polyisocyanates and polyesters. Carbon dioxide gas is given off during the reaction and it serves as a blowing agent which causes the polymer to foam in place. An intermediate that can be used to produce the polyester component is ISOSEBACIC® acid, a mixture of C-10 dibasic acids. ISOSEBACIC acid will be available soon in commercial quantities from a new U.S.I. plant at Tuscola, Illinois.

"Stabilized" Polyethylene Fabrics Now Being Made Via New Finishing Process

A patented technique for finishing polyethylene fabrics is now being employed to improve shrink resistance, strength, appearance and other physical characteristics. According to the patent, conventional finishing methods for polyethylene fabrics—calendering or hot fluid treatment of the greige goods to preshrink them—result in loss of yardage, strength and optimum appearance.

The patented process involves the pretreatment of oriented polyethylene filaments before conversion to give them a residual shrinkage of 8-20% (tested at 75°C for 20 minutes). The filaments are then converted to greige goods, in which they have a wavy form.

The greige goods are subsequently held along both the length and width to prevent retraction and are heated at a strictly controlled temperature for a limited time. So held and treated, the filaments in the fabric shrink to the extent of their residual shrinkage and straighten out, without reducing the area of the fabric.

By comparison with fabrics finished by conventional methods, these materials are said to have better appearance, strength and aging properties. The process is claimed to provide economies in operation — to save yardage and to reduce the number of finishing steps required.

Gov't. Authorizes Substitutions In SDA 40 Alcohol Formulation

Shortage of Brucine Denaturant Made Modifications Necessary.

SDA 40, which the U. S. Government authorizes for use in toilet goods, external pharmaceuticals, biocides, detergents, etc., has been formulated until now with ⅛ gallon of *tert.*-butyl alcohol plus 3 ounces of brucine alkaloid or 3 ounces of brucine sulfate per 100 gallons of ethyl alcohol. To relieve difficulties of denaturers and users of this formulation due to a critical shortage of brucine, the Internal Revenue Alcohol and Tobacco Tax Division (A. & T. T. D.) has authorized the formulation of SDA 40 with ⅛ gallon of *tert.*-butyl alcohol plus either 1½ ounces of brucine alkaloid, or 1½ ounces of brucine sulfate, or 1½ ounces of quassin per 100 gallons of ethyl alcohol.

How the Substitutions Came About

When the brucine shortage first became acute, an inability to meet customer requirements for SDA 40 threatened to upset the entire industry. Recognizing the situation, the A. & T. T. D. authorized quassin as an alternate denaturant.

While brucine is one of the bitterest materials known, quassin had been tested and found sufficiently bitter and acceptable from other standpoints to serve as an alternate denaturant. Quassin had been used as a denaturant in Canada for 25 years, and this experience dispelled concern about possible adverse effects arising from its use.

Samples of SDA 40 denatured with quassin were offered to the trade, and users were urged to make up their products with this alternate, to assure compatibility with their formulas. After testing, many customers advised that they would accept SDA 40 alcohol with this denaturant.

However, realizing that limitations on the supply of quassin made it an incomplete answer to the shortage, the A. & T. T. D. took quick action to extend existing supplies of brucine by authorizing denaturation with reduced quantities of brucine alkaloid and

MORE

SDA 40 AUTHORIZED USES
(Under Permit)

- Hair and Scalp Preparations
- Bay Rum
- Lotions and Creams (Hand, Face, Body)
- Deodorants (Body)
- Perfumes and Perfume Tinctures
- Toilet Water and Colognes
- Shampoos
- Soaps and Bath Preparations
- External Pharmaceuticals (not U.S.P. or N.F.)
- Disinfectants, Insecticides, Fungicides and Other Biocides
- Cleaning Solutions (including Household Detergents)
- Theater Sprays, Incense and Room Deodorants
- Miscellaneous Dye Solutions
- Miscellaneous Solutions

Vitamin C Indicated for Virus & Other Infections

Several medical investigators have found that continuous massive doses of ascorbic acid (Vitamin C) are effective in treating virus diseases such as polyiomyelitis, measles and virus pneumonia; bacterial infections such as tuberculosis and scarlet fever; and cases of poisoning such as snake bite and lead poisoning. The range of antibiotic and antitoxic action is said to be unusually broad, and, in addition, there is claimed to be *complete freedom from allergic or toxic reaction.*

Intravenous or intramuscular injection is the preferred method of treatment. When so administered, ascorbic acid is said to compare favorably with sulfa drugs and mycelial antibiotics. Effectiveness of the therapy is reported to be dependent upon the potent oxidation-reduction action of ascorbic acid, which rapidly neutralizes viral or bacterial toxins.

Ascorbic acid occurs naturally in citrus and other fruits, as well as green leafy vegetables. One method of producing it synthetically is by using L-sorbose as the starting compound and employing *sodium methoxide* in the final (enolization) step of the synthesis.

Index of Chemical Patents Now Being Prepared

Every patent relating to chemistry which has been issued by the U. S. Patent Office since 1950 is being collected and indexed for reference purposes by a Washington information service. The collection is being kept current and is being made available on a subscription basis to chemical companies, libraries, educational institutions and other interested organizations.

At the moment, indices for 1955, 1956, 1957 and the first 10 months of 1958 are available. They cover 30,000 patents. A trained staff of chemists and biochemists is now working on the indices for 1950-1954, which will add another 40,000 patents. It is estimated that when this work is completed, in about two and one-half years, more than 100,000 patents will have been collected and indexed.

It is claimed that the indexing method used analyzes, edits, classifies and cross-indexes U. S. chemical patents into the fastest and most accessible reference system ever devised.

CONTINUED *Alcohol*

brucine sulfate. Consequently, there are now three new SDA 40 formulations approved by the Alcohol and Tobacco Tax Division. U.S.I. designations are shown in the box below.

U.S.I. Designations for New SDA 40 Formulas

SD-40-1M .....1½ oz. brucine alkaloid
SD-40-2M .....1½ oz. brucine sulfate
SD-40-3 .....1½ oz. quassin

U.S.I. Studying Alternate Denaturants

Because brucine and quassin derive from natural imported products, there is always the possibility that the supply of these denaturants might be inadequate at some future date. U.S.I.'s research laboratories are therefore continuing studies to develop suitable additional alternates.

Ideally, alternate materials suitable as denaturants should be synthetic and domestically produced. Once found and tested in end-use formulations, such stand-by alternates—pending approval by the government—would assure denatured alcohol consumers of an uninterrupted flow of raw material at all times.

Methionine-Hormone Formulation Effective For Treating Acne

Clinical studies have revealed that a formulation of DL-acetyl methionine, estrogenic hormone, colloidal sulfur and resorcin applied to the skin is effective for treating acne conditions.

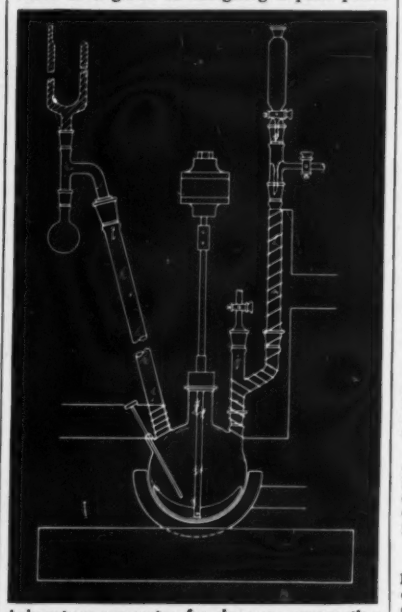
The medical research workers who conducted these studies found that methionine—the sulfur-bearing amino acid—and the estrogenic hormone act synergistically to reduce the excessive secretion of fatty materials from the sebaceous glands—a characteristic condition in acne cases. Consequently, the formulation dries and heals the acne lesions rapidly.

For optimum results, the treatment was supplemented with dietary and hygienic routines, and small oral doses of thyroid extract and estrogenic hormone.

Pure Sodium Alkoxides Can Be Made by Dry-Way Process

A new technical bulletin just released by U.S.I. describes a valuable but little-known technique for preparing sodium alkoxides from metallic sodium and alcohol vapors. This low-cost, dry-way process yields powders which are high-analysis alkoxide, in contrast to the 16-18% alkoxide solutions produced by the usual method of introducing sodium into liquid alcohols. It provides a way for pharmaceutical and other manufacturers who make their own alkoxides to get a high-purity material.

Products are almost identical in analysis to commercially available alkoxides. Although the bulletin describes the laboratory technique of passing vaporized alcohols over molten sodium, sufficient data is available to serve as a guide in designing a pilot plant.



Laboratory apparatus for dry-way preparation of sodium alkoxides.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

L-Methionine, labeled with both carbon-14 and deuterium (methyl-$C^{14}D_3$), can now be obtained for research purposes. This amino acid is reported useful in studying the mechanism of ergosterol. **No. 1430**

Cosmetic technology is discussed in new, 1450-page book now being sold. In 53 chapters, 61 experts cover over 3 dozen types of products. Includes technology, historic and legal aspects, physiology, testing, manufacture. **No. 1431**

Slide rule for chemists has special scales for solving pressure, temperature, solution concentration problems on one face, standard scales on other face. Gives atomic wts. of 52 elements, molecular wts. of 18 atomic groups. **No. 1432**

Chloromethoxypropyl mercuric acetate solutions now available in commercial quantity. Fungicidal and bactericidal activity claimed superior to phenyl mercuric compounds, due partly to presence of labile chlorine atom. **No. 1433**

Uses of stainless steel in CPI discussed in newly revised, 40-page free booklet. Sections on fields of plastics, detergents, nuclear power, others. Includes corrosion resistance table and table comparing stainless grades. **No. 1434**

Full line of polyesters for producing rigid or flexible urethane foams can now be obtained commercially. For rigid products, combinations of prepolymer and polyester are offered for foaming in place by mixing or spraying. **No. 1435**

Long-path infrared system recently developed is said to detect evaporation from one drop of a predetermined chemical in an average room. System senses the chemical by its IR spectrum, is not usually sensitive to other materials. **No. 1436**

Polyethylene work gloves now on market are claimed to provide protection without loss of fingertip sensitivity. Are lightweight, waterproof, resistant to most chemicals. Said to be suitable for use with radioactive materials. **No. 1437**

Comprehensive file of trademarks used by CPI here and abroad is now available for reference at a charge. Includes registered, unregistered, common, scientific, technological names. Composition, uses, producer given in many cases. **No. 1438**

New analytical-grade ion-exchange resins based on cellulose are claimed suitable for chromatographic fractionations of high-molecular-weight materials beyond range of conventional resins. Are extremely porous and hydrophilic. **No. 1439**

PRODUCTS OF U.S.I.

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OTHER PRODUCTS

Organic Solvents and Intermediates: Normal Butyl Alcohol, Amyl Alcohol, Fusel Oil, Ethyl Acetate, Normal Butyl Acetate, Diethyl Carbonate, DIATOL®, Diethyl Oxalate, Ethyl Ether, Acetone, Acetoacetanilide, Acetoacet-Ortho-Chloranilide, Acetoacet-Ortho-Toluidide, Ethyl Acetoacetate, Ethyl Benzoylacetate, Ethyl Chloroformate, Ethylene, Ethyl Sodium Oxalacetate, Sodium Ethylate, ISOSEBACIC® Acid, Sebacic Acid, Urethan U.S.P. (Ethyl Carbamate), Riboflavin U.S.P., Pelargonic Acid, 2-Ethyl Heptanoic Acid.

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Heavy Chemicals: Anhydrous Ammonia, Ammonium Nitrate, Nitric Acid, Nitrogen Fertilizer Solutions, Phosphatic Fertilizer Solution, Sulfuric Acid, Caustic Soda, Chlorine, Metallic Sodium, Sodium Peroxide, Sodium Sulfite, Sodium Sulfate.

Animal Feed Products: Antibiotic Feed Supplements, BHT Products (Antioxidant), Calcium Pantothenate, Choline Chloride, CURBAY B-G®, Special Liquid CURBAY, VACATONE®, Menadione (Vitamin K_3), DL-Methionine, MOREA® Premix, Niacin USP, Riboflavin Products, Special Mixes, U.S.I. Permadry, Vitamin B_{12} Feed Supplements, Vitamin D_2, Vitamin E Products, Vitamin E and BHT Products.

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agitation is usually required to reform the emulsion, and where such agitation does not reform the emulsion a suitable spray product has not been obtained. Normally, only oil soluble emulsifying agents are required, although for products like glass cleaners the addition of water soluble agents to the water phase may be necessary to produce an effective product. From the standpoint of container corrosion non-ionic surface active agents are preferable. "Emcol-14," a polyglyceride ester of a fatty acid, has been found to be especially good in eliminating the hazard of container corrosion.

It is essential that the aerosol formulator have a good knowledge of the principles of emulsion chemistry. The amount and type of emulsifying agent, method of mixing the phases, relative densities of the two phases, and other such properties have definite effects upon the final emulsion system. Normally, the external oil phase can be diluted to any extent with a "Freon" propellant or other oil type component without greatly affecting the emulsion stability. Increasing the amount of the dispersed phase results in high viscosities until the point of emulsion inversion is reached. The pressure and spray characteristics of water in oil emulsion products seem to be almost independent of the internal water phase. Only the relative amount of flammable oil to propellant content has any effect upon product flammability. It is also interesting to note that for many water in oil emulsion systems, "Freon-11" can be used in connection with certain emulsifying agents without resulting in serious container corrosion. This is radically different from the results obtained with soluble systems containing "Freon-11" and any sizable amounts of water.

Although water in oil emulsion systems are basically adapted for spraying liquids, powders can often be dispersed uniformly in the water phase before it is added to the oil phase. If stable emulsions are prepared, possible agglomeration of the powder particles will be considerably reduced.

Sprayable oil in water emulsion systems can also be formed. However, since the propellant is in the inner phase of the emulsion, this method often leads to severe target foaming and valve drool. Also, from our experience, it is usually impossible to produce satisfactory space type sprays with such an emulsion system. Nevertheless, products such as glass cleaners and wall cleaners can be formulated along this line with the result that the foam deposit on the target will inhibit running on vertical surfaces.

(4) *Three Phase Types:* Although the three phase type of formulation system has been known for some time, it has never become very popular. It consists of two separate liquid phases and a vapor phase. The bottom liquid phase is composed of sufficient propellant to vapor-fill the container with no pressure drop-off after complete product discharge. The upper liquid phase is composed of water and water soluble active ingredients. The third phase is the propellant vapor phase which pushes the product out of the container. With this type of formulation no break up at the exit of the valve occurs due to propellant flashing since no propellant is discharged.

There are at least three obvious drawbacks to a formulation of this type, which have limited its usage.

1. Only wet coarse sprays can be produced because no breakup of the product occurs at the valve due to propellant flashing.
2. None of the active ingredients can have any degree of solubility in the propellant phase without disturbing the concentration in the discharged spray.
3. The position of the product during spraying is extremely critical since tilting of the container can result in the end of the dip tube being located in the propellant layer.

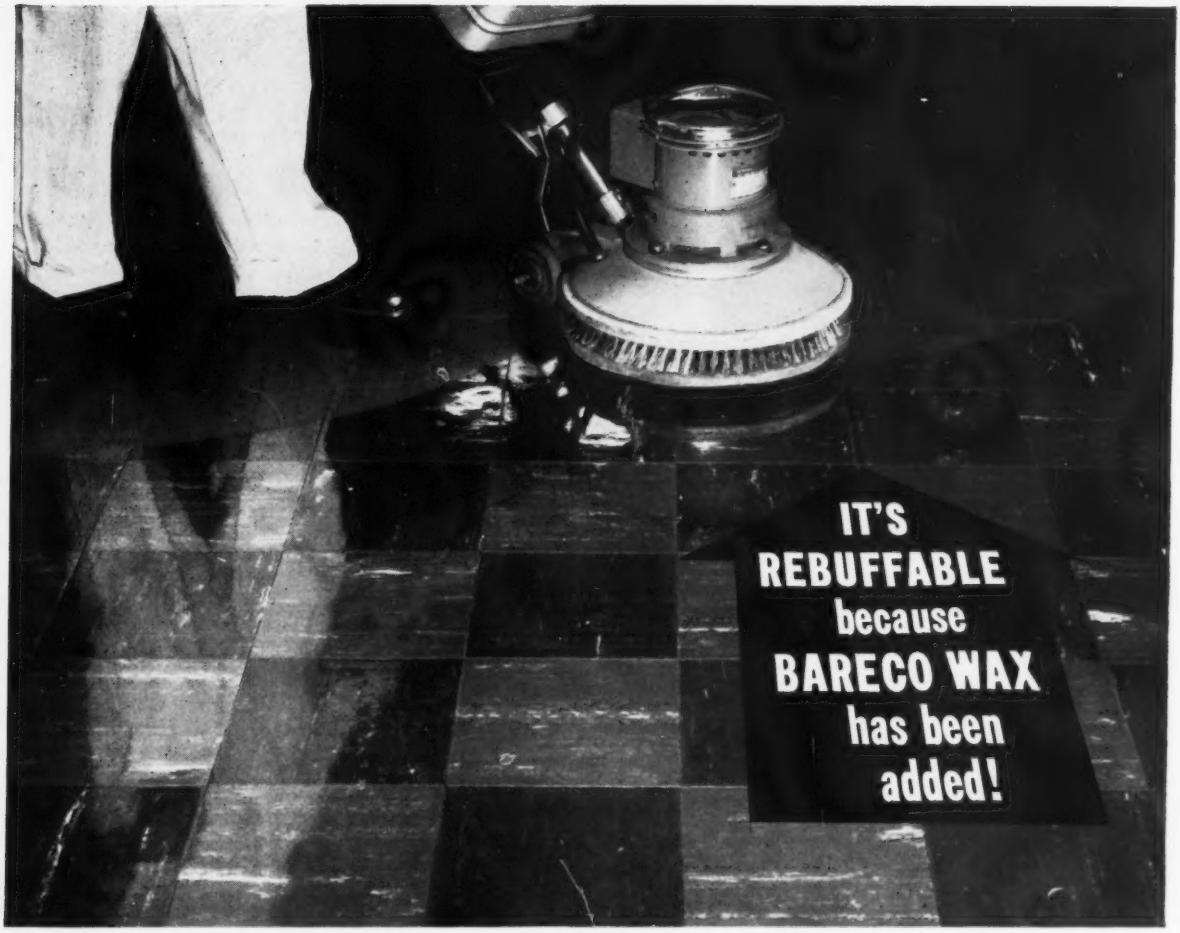
The only major aerosol product known to have used this type of system is the "Larvex" moth proofer.

B. *Foam Systems:* Aerosol foam products are based upon viscous oil in water emulsions where the liquid propellant is solubilized in the oil phase. Shave creams have long been prepared by this method. If desired, for such products as car cleaners and silver polishes, a powder may also be dispersed in the emulsion.

The foam discharge characteristics can be widely varied by altering the type and relative amounts of the components in the concentrate and propellant. By increasing the ratio of propellant to concentrate, a drier foam with a greater total volume can be produced. The resilience or elasticity of the foam discharge can be increased by merely using a propellant with a higher vapor pressure. And wet, unstable foams, with a coarse bubble structure, can usually be created by dilution of the concentrate with water.

Various other effects can be produced by varying the composition of the concentrate. Thickening agents such as CMC can have a decided influence upon the foam stability. The type and amount of surface active agents included in the concentrate will result in very definite effects upon the foam stability, wetness, structure, elasticity and other such properties. Additives such as lanolin, glycerol, silicon fluids, and others can radically change the feel of the foam product.

C. *Stream Systems:* Aerosol products which will produce a liquid stream discharge are sometimes required for such uses as marking livestock. Usually, this type of discharge is not too difficult to attain. Actually, I am certain that many formulators will agree that stream discharges are much easier to obtain than they are to correct, especially when a spray product for an adhesive is desired. Usually, a stream can be produced by combining either a viscous concentrate or a low proportion of



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Saponification Number	30-40	25-30
M.P., ASTM D938-49, °F.	190-195	195-200
M.P., ASTM D127-49, °F.	200-210	205-215
Pen. 100/5, ASTM D1321-55T	1-3	1-3
Color, NPA	4 max.	2 max.

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liquefied propellant with a standard spray valve. However, in some cases, a high product viscosity alone is not always satisfactory due to target foaming caused by flashing of the residual propellant.

Formulation Procedures

Once the propellant characteristics and basic formulation methods are understood, the actual formulation of an aerosol product can be started. Unfortunately, there is no specific pattern of experimental work which will be satisfactory in all cases. However, there are some general pointers which should be kept in mind. These are summarized in Table III.

A detailed list of premarket tests for aerosol products is given in the Manual for Vendors and Fillers of Aerosol and Pressurized Packages, published by the Chemical Specialties Manufacturers Association. Pertinent Canadian shipping regulations are given in Subpart F of the Board of Transport Commissioners Regulations. Insecticidal products must be registered for approval with the Federal Department of Agriculture, and food and drug products must be approved by the related Federal agencies.

Summary

Although various aspects involved in the formulation of aerosol products have been presented briefly, the subject is far from being complete. Aerosol valves, containers, government regulations, patents and other such topics have only been mentioned in passing. Even the descriptions of aerosol propellants and formulations have been kept very brief. It is sincerely hoped, however, that sufficient details have been presented so that those organizations which may be planning to place new aerosol products on the market may realize the complexities involved and will take advantage of the many technical facilities available.

The development of a good aerosol product generally requires the work of a trained group of specialists. Often considerable study and expenses are encountered before a completely satisfactory product is obtained. And — although the techniques of commercial loading operations have not been mentioned at all, this vital phase of the industry also requires a considerable amount of specialized knowledge. The production of aerosols is far from being a routine task of loading solids, liquids and gases into containers.

Merchandisers of aerosol products can obtain valuable assistance from the contract or custom aerosol manufacturer. To co-operate with these manufacturers and to supplement technical information available to the aerosol industry, Du Pont of Canada maintains a fully equipped Technical Service Laboratory at its research centre in Kingston, Ontario, and can supply additional services from its plant in Maitland, Ontario where "Freon" fluorinated products are made.

Table III. General Formulation Procedures

1. List desired properties of final product.
2. Choose propellant and formulation system.
3. Determine product and propellant compatibilities.
4. Determine composition boundaries within regulatory limitations.
5. Choose specific formulation, valve, and container.
6. Ensure economic feasibility of product and market potential.
7. Ensure that product can be commercially loaded.
8. Carry out patent search.
9. Do extensive product stability testing.
10. Prepare suitable label.
11. Obtain necessary registrations and approvals.
12. Arrange for commercial loading and marketing.

Table IV. CSMA Aerosol and Non-food Pressurized Product Surveys
(U. S. AND CANADA)

Year	Total Units	% Increase
1951	34,000,000	—
1952	97,000,000	185
1953	140,000,000	44
1954	185,000,000	32
1955	240,000,000	30
1956	320,000,000	33
1957	390,000,000	22

The aerosol industry in the U. S. and Canada has taken some steps during the last few years, as Table IV shows very clearly.

The public is continuing to demand new aerosol products and the production and marketing of these aerosol products can be economically attractive. As has been stated many times before, anything which is now poured, daubed, dusted or brushed, can be a potential new aerosol product with sufficient advantages over other forms of packaging to create a most attractive outlook for increased sales and profit.

The aerosol market is far from being saturated at the present time, and although the formulation of a new product is not a simple task, a good product coupled with a sound sales program will soon justify the research expenditures.

—★—

Revson Sells Revlon Stock

Martin Revson, former executive vice-president of Revlon, Inc., New York, sold 100,000 shares of Revlon stock to the company last month in exchange for 78,461 shares of Schering Corp., Bloomfield, N.J.

Revlon acquired an 8.5 per cent interest in Schering early last year. Mr. Revson resigned from the company last summer.

—★—

New Specialty Fragrance

A new fragrance called "Emarlia" is described in a recent number of "Lab Scents" published by Aromatic Products, Inc., New York. Available at $3.50 per pound in five pound lots f. o. b. New York, the product is said to be suitable for chemical specialties, toiletries, and cosmetics.

Also described in the four-page folder are fragrances that may be incorporated in detergent, cleanser, pesticide, and other chemical specialty formulations.

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U. S. Army, Natick, Mass.

Part II

BACTERICIDAL action of many disinfectants is affected by pH, including the phenolic derivatives. A part, possibly a major part of this effect on phenolics is probably associated with the effect of the pH on the solubility of the compound. All three principal compounds studied, the chloro-o-phenylphenol, 2-chloro-4-phenylphenol and o-benzyl-p-chlorophenol are only slightly soluble in water. However, their corresponding sodium salts are very soluble. In all cases, solutions of their corresponding sodium salts were prepared, adjusted to the desired pH with sodium hydroxide, and buffered with McIlvane's citrate-phosphate buffer (pH 5.0, 7.0, 9.0 and 11.0).

A turbid solution resulted in all cases when the back-neutralization of the phenate ion was carried beyond the solubility of the free phenol. The resulting emulsion formed in the case of the 2-chloro-4-phenylphenol solution was unstable due to the tendency of the compound to crystallize readily out of solution. The chloro-o-phenylphenol and o-benzyl-p-chlorophenol solutions did not tend to crystallize; the melting point of these two compounds being less than -20°C and 45°C, respectively. 2-chloro-4-phenylphenol, on the other hand, has a melting point of 74°C. The commercial choloro-o-phenylphenol is an isomeric mixture of 4-chloro-2-phenylphenol and 6-chloro-2-phenylphenol and was resolved on the basis of the differential solubilities of their calcium salts (17) and identified via their corresponding mono-nitro-derivaties (18), as well as checked by their infra-red spectograms against known samples.

Fatty acid soaps, anionic synthetic surface active agents, and nonionic alkyl aryl polyethylene glycol ether all have deleterious effects on bactericidal action of the phenolic derivatives tested. Among the various fatty acid soaps tested, coconut oil soaps had the least effect, soybean oil and cottonseed oil soaps had the greatest effect, and linseed oil soaps were intermediate. Alkyl aryl polyethylene glycol ether had greater effect than either the anionic synthetic detergents or the fatty acid soaps. Although the phenolics can be used in the presence of soaps and anionic synthetic detergents, provided the phenolics are used at a moderately high concentration, they are much more effective in the absence of such substances. The data indicate that phenolics and nonionic detergents of the type tested should not be used together. These data suggest, also, that it is not economical to use these phenolic materials with soaps (except coconut oil soap) in routine disinfection of latrine buckets. A close inspection of the data found in Table V indicates that a mixture consisting of 75 per cent sodium chloro-o-phenylphenate and 25 per cent sodium o-phenyl-phenate gives the most satisfactory result of all formulations tested.

Phenolic compounds are less affected by organic matter and by soaps (in these and other studies) than the quaternary ammonium compounds. On the other hand, extremely alkaline detergents such as caustic soda and sodium metasilicate are detrimental to the action of phenol. In the disinfection of field latrines, however, these strongly alkaline materials are not likely to be used. Weighing these differences, then, it is believed that phenolics have an advantage over the quaternaries for this particular use. This might not necessarily be true for all quaternaries and phenolics as a class, but rather on a basis of comparison of several of the compounds tested which are believed to be the best available in each group.

Tables VI, VII, and VIII summarize some further studies on the best formulation (75 per cent sodium chloro-o-phenyl-phenate and 25 per cent sodium o-phenylphenate). Table VI is a summary of studies on the disinfection of stool by the proposed disinfectant. At a concentration of 2,000 ppm of the proposed disinfectant, the liquid phase in the latrine bucket was found to be sterile after a five minute contact period. The intact stool, however, was not sterile even after a 60 minute contact period, although no coliform could be recovered from it. At a 1,000 ppm concentration, similar results were obtained. However, when the con-

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centration of the germicide was lowered to 500 ppm the liquid phase was not sterile even after 45 minutes contact, although no coliform was recovered even at the 5 minute contact period. Water tem-

Table V. Effect of Added Peptone, Fatty Acid Soaps, and Other Detergents on the Bactericidal Properties of Various Phenolic Derivatives on Mixtures of Phenols

Test material	Composition of Formulation (% by weight) Sodium-o-phenyl phenate	Sodium trichloro-phenate (2,4,5)	Sodium chloro-o-phenyl phenate	Isomeric benzyl cresols	P-chloro meta-xylenol	Others	Builders	Inactivator	ppm Phenol required for zero count. Exposure times as shown (min.) 2	4	6	8
1.	25		75	.....	.....			None	500	500	200	<200
								5.0% Peptone	>500	>500	500	500
								0.1% Nacconol NR	500	500	500	500
								0.2% Nacconol NR	1000	1000	500	500
								0.5% Ocean green	1000	1000	500	<500
								1.0% Ocean green	2000	1000	1000	500
								0.2% Coconut oil soap	<500	<500	<500	<500
								0.5% Coconut oil soap	1000	1000	500	500
								1.0% Coconut oil soap	1000	1000	500	500
								0.2% Soya Bean oil soap	2000	1000	1000	1000
								0.5% Soya Bean oil soap	5000	2000	2000	2000
								1.0% Soya Bean oil soap	5000	5000	5000	2000
								0.2% Cottonseed oil soap	2000	1000	1000	<1000
								0.5% Cottonseed oil soap	.5000	2000	2000	<2000
								1.0% Cottonseed oil soap	5000	5000	5000	2000
								0.2% Linseed oil soap	1000	1000	500	500
								0.5% Linseed oil soap	2000	2000	1000	<1000
								1.0% Linseed oil soap	5000	2000	2000	2000
								0.05% Igepal* C.A.	5000	5000	2000	2000
								0.10% Igepal* C.A.	>5000	>5000	>5000	5000
								0.20% Igepal* C. A.	>5000	>5000	>5000	>5000
2.		25	75	.....	.....			None	500	500	200	<200
								5.0% Peptone	500	500	200	<200
								0.5% Cottonseed oil soap	5000	5000	2000	2000
								1.0% Cottonseed oil soap	>5000	5000	5000	5000
								0.5% Soya Bean oil soap	5000	2000	2000	2000
								1.0% Soya Bean oil soap	>5000	5000	5000	5000
3.	25	25	50	.....	.....			None	500	500	500	500
4.	20		60	.....		20% Tri poly		5.0% Peptone	500	500	500	500
								None	<500	<500	<500	<500
								0.5% Cottonseed oil soap	5000	2000	2000	1000
								1.0% Cottonseed oil soap	5000	2000	2000	2000
								0.5% Cottonseed oil soap	1000	1000	1000	1000
								+1.0% Pretone	1000	1000	1000	1000
								2.0% Peptone	1000	1000	1000	1000
5.	12		48	.....	.....	40% Tri-poly		0.5% Cottonseed oil soap	2000	2000	1000	1000
								1.0% Cottonseed oil soap	5000	2000	2000	2000
6.			50	50*Na bis (2 hydroxy-3,5,6-trichloro-phenyl methane)				0.5% Cottonseed oil soap	5000	5000	2000	2000
7.			50	50 Na bis (5 chloro-2-hydroxy-penyl methane)				0.5% Cottonseed oil soap	5000	5000	2000	2000
8.				Disinfectant latrine bucket 51D 377				0.5% Cottonseed oil soap	2000	2000	2000	2000
9.			50	50 Bisphenol mono-sodium salt [Na bis (hydroxyphenyl propane]				1.0% Cottonseed oil soap	5000	5000	2000	2000
								0.5% Cottonseed oil soap	5000	5000	2000	2000
10 (Tested at 37°C)	20		60				Builders Water Conditioners Soap 20% Versene**	None	<500	<500	<500	<500
								0.5% Cottonseed oil soap			2000	1000

(Table continued on following page)

Conditions of Experiment: 1. Medication Temp.: 20°C 2. Organism: E. coli (ATCC #26) 3. A plate count of 1000 is equivalent to about 99.9% kill, a plate count of 100 is equivalent to 99.99% kill, etc.

Notes: Versene: Tetrasodium ethylene diamine tetracetate Pyro: tetrasodium pyrophosphate Tripoly: sodium tripolyphosphate

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Table V (Continued). Effect of Added Peptone, Fatty Acid Soaps, and other Detergents on the Bactericidal Properties of Various Phenolic Derivatives on Mixtures of Phenols

Test Material	Composition of Formulation (% by weight) Sodium-o-phenyl phenate	Sodium trichloro-phenate (2,4,5)	Sodium chloro-o-phenyl phenate	Isomeric benzyl cresols	P-chloro meta-xylenol	Others	Builders	Inactivator	ppm Phenol required for zero count. Exposure times as shown (min.)			
11. (Tested at 37°C)				36.7	6.12% NaOH 28.6% Pyro-28.6% Coconut oil soap			None	>250	>250	<250	<250
								300 ppm hard water	500	<500	<500	>500
								5% Peptone	2000	2000	2000	<2000
								0.5% Cottonseed oil soap	1000	1000	1000	500
								1.0% Cottonseed oil soap	2000	2000	1000	1000
12. (Tested at 37°C)				17.6	47.1% Pyro 35.3% Coconut oil soap			None	<200	<200	<200	<200
								5% Peptone				
								0.5% Cottonseed oil soap				
13.				15	15 30% Pyro 40% Coconut oil soap			None	1000	500	1000	1000
								None	<500	<500	500	500
									1000	500	<500	<500
14. (Tested at 37°C)			15	15	30% Pyro 40% Coconut oil soap			5% Peptone	<500	<500	<500	<500
								0.5% Cottonseed oil soap	2000	1000	500	<500
								None	1000	1000	<500	<500
15.	20		50		30% Sodium 2-chloro-4 penyl penate			0.5% Cottonseed oil soap	<500	<500	<500	<500
									5000	5000	1500	<500
16.			50		20% Tripoly 10% tartaric acid			None	>500	>500	<500	<500
								0.5% Cottonseed oil soap	2000	2000	2000	2000
17.			75	25				None	<500	<500	<500	<500
								0.5% Cottonseed oil soap	2000	2000	2000	1000
18.			100					5% Peptone	1000	1000	1000	1000

perature in these studies varied from 18 to 25°C.

Table VII is a summary of tests where the testing solutions were maintained at 10°C. during the test period. Comparison of these data with similar formulations in Table V tested at 20°C. indicates that slightly greater concentrations of the proposed formulations are required at 10°C. than 20°C. The data suggests that the temperature coefficient between

Table VIa. Studies on the Disinfection of Stool by the Proposed Disinfectant****

500 ppm germicide	Result after exposure times as indicated* after 72 hours incubation at 37°C			
Exposure time	Lactose broth**		Plate count EMB***	
Liquid portion sampled	Sample		Sample	
5 min.	1	—	1	1
	2	—	2	1
	3	—	3	1
15 min.	1	Gr	1	4
	2	Gr	2	2
	3	Gr	3	1
30 min.	1	—	1	0
	2	—	2	3
	3	—	3	4
45 min.	1	Gr	1	3
	2	Gr	2	2
	3	Gr	3	4

*Sampled with 4 mm. 26 gauge pt. loop.
**No growth — growth, but no gas — growth with gas.
***EMB eosin methylene blue agar.
The lactose tubes showing gas were streaked onto EMB Agar. Colonies on EMB were not *E. coli*.
****Consists of a mixture of 75% sodium-chloro-phenyl phenate and 25% sodium-o-phenyl phenate.

Table VIb. Studies on the Disinfection of Stool by the Proposed Disinfectant*

1000 ppm germicide		Results after exposure times as indicated cultures incubated 72 hours at 37°C			
Exposure time	Lactose broth		Plate count EMB agar		Plate count TGE** agar	
Liquid portion sampled	Sample		Sample		Sample	
5 Min.	1	—	1	0	1	0
	2	—	2	0		
	3	—				
10 Min.	1	—	1	0	1	1
	2	—	2	0		
	3	—				
15 Min.	1	—	1	0	1	2
	2	—	2	0		
	3	—				
30 Min.	1	—	1	0	1	0
	2	—	2	0		
	3	—				
45 Min.	1	—	1	0	1	0
	2	—	2	0		
	3	—				
60 Min.	1	—	1	0	1	0
	2	—	2	0		
	3	—				
Stool samples						
10 Min.	1	Gr				
	2	Gr				
60 Min.	1	Gr				
	2	Gr				

*See footnotes for Table VIa.
**TGE Agar = Tryptone glucose extract agar, Bacto B2, Difco Co.

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Table VIc. Studies on the Disinfection of Stool by the Proposed Disinfectant*

2000 ppm germicide	Results after exposure times as indicated cultures incubated 72 hours at 37°C			
Exposure time	Lactose broth		Plate count EMB agar	
Liquid portion samples	Sample		Sample	
5 min.	1	—	1	0
	2	—	2	0
	3	—		
10 min.	1	—	1	0
	2	—	2	0
	3	—		
20 min.	1	—	1	0
	2	—	2	0
	3	—		
30 min.	1	—	1	0
	2	—	2	0
	3	—		
45 min.	1	—	1	0
	2	—	2	0
	3	—		
60 min.	1	—	1	0
	2	—	2	0
	3	—		
Solid portion samples				
60 min.	1	Gr	1	12
	2	Gr	2	10
	3	Gr	3	9

*See footnotes for Table VIa.

Table VIII. Bactericidal Test on Samples of Proposed Disinfectant* Aged at 50°C for 540 Days

Sample tested and inactivator	PPM compound need to give zero counts in time (minutes) shown			
	2	4	6	8
Proposed disinfectant alone	<500	<500	<500	<500
Proposed disinfectant +5% peptone	<500	<500	<500	<500

*Proposed disinfectant is composed of 75% sodium chloro-o-phenyl phenate and 25% sodium-o-phenyl phenate.
Test organism: 22—26 hr. broth culture of E. coli, ATCC #26. Temp. of testing solution: 20 —0.2°C. Water for preparing solution: distilled water. Inactivator: 5% Bacto — Peptone where indicated. Subculture medium: Lecithin broth with 1.5% Bacto agar.

10°C. and 20°C. is roughly two or perhaps slightly less than two, when tested in the presence of five per cent peptone.

The data shown in Table VIII indicate that the proposed disinfectant formulation has almost full bactericidal activity against *E. coli* after 540 days storage at 50°C. The data suggests that this storage time and temperature do not appreciably affect the bacteriological effectiveness of the proposed disinfectant formulation, although visible darkening of the product was noted during the storage period.

Summary and Discussion

The conditions of use, as well as the manner in which the disinfectant is used, are important considerations in practical disinfection. The application of a concentrated dry-type disinfectant as a single agent for total disinfection of the contents of field latrine buckets appears to be impractical. The phenols in general act as coagulants and tend to reduce the organic matter concentration in solution by keeping the feces intact. In order to achieve complete disinfection of the stool by chemical means, it would probably be necessary to liquify the stool completely, then kill the organism. Liquifaction can be achieved by the use of fairly high concentration of caustic soda.

On the other hand, the danger of cross-contamination of the men who use the latrine bucket, as well as those cleaning the bucket, can be considerably reduced by disinfecting only the surface and liquified portions of the stools. In this connection, it is to be realized that in a pathological condition leading to diarrhea, relatively greater soil load will result, not only because of the liquified stool, but because of the poor absorption of food in the intestine.

On the basis of this study, 2,000 ppm of the proposed disinfectant will give satisfactory destruction of the bacteria in the liquid portion of the latrine bucket plus a reasonable margin of safety.

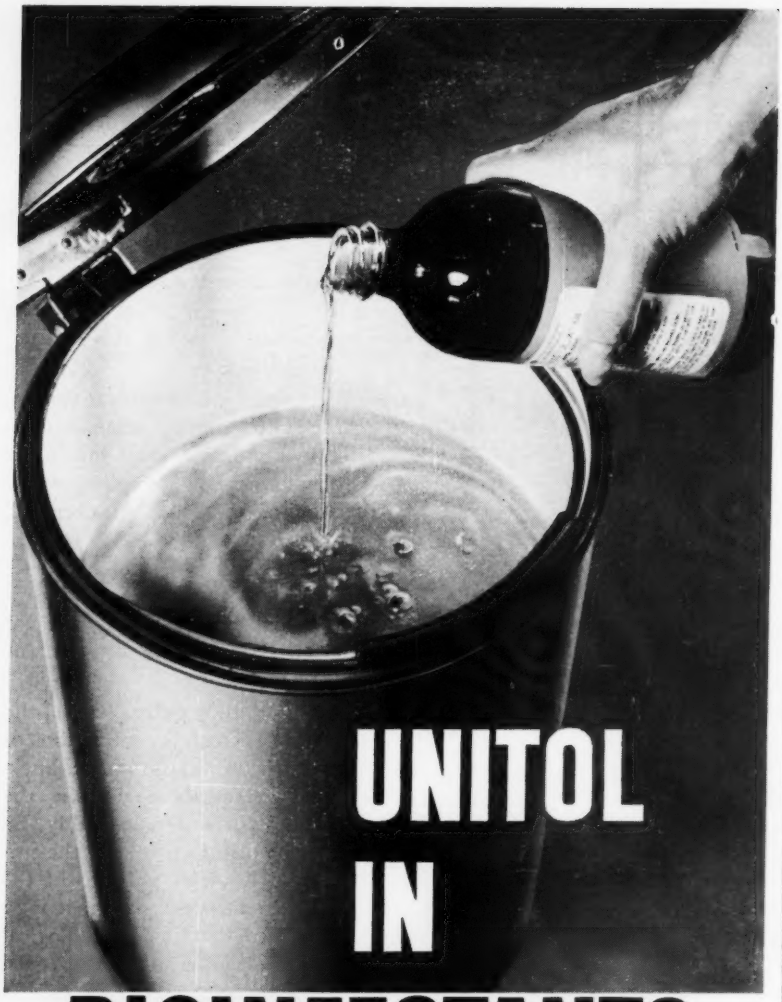
In order to substantiate further a use level of 2,000 ppm of the proposed disinfectant for field latrines and general purpose use, the phenol coefficient (3) and use-dilution confirmation tests (4) were carried out using the A.O.A.C. procedure. A phenol coefficient of 71 was found for the proposed disinfectant using *S. typhosa* as the test organism. The conventional method of arriving at the maximum safe use-dilution presumed to be equiv-

(*Turn to Page* 106)

Table VII. Bactericidal Tests on the Proposed Disinfectant Against E. Coli at 10°C

Formulation	Conditions	PPM compound needed to give zero counts in time (minutes) shown below 2 min.	4 min.	6 min.	8 min.
25% sodium-o-phenyl phenate	alone	500	500	200	200
Plus 75% sodium chloro phenyl phenate	+5.0% Peptone	1000	1000	1000	1000
	+0.5% Soyabean oil soap	2000	2000	2000	2000
	+0.5% alkyl aryl sulfonate	2000	2000	2000	1000

Conditions of test: Test culture: *E. Coli*. Temperature of test solution: 10°C.



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Military Disinfectant

(*From Page* 105)

alent in efficiency to five per cent phenol is to multiply the phenol coefficient number found by the figure 20 to determine the number of parts of water in which one part of the disinfectant is to be incorporated. (3) A 1:1400 dilution of the proposed disinfectant was found necessary to kill *S. Choleraesuis* in the confirmation safe-use-dilution test. These confirmatory data very closely substantiate the phenol coefficient of 71, since (20 x 71 = 1420), a dilution of 1:1400 is, for practical purposes, the same as 1:1420 which is equivalent to 0.07% or 700 ppm. This data would then suggest that a concentration of 700 ppm of the proposed disinfectant would be an effective safe use concentration.

The results of the A.O.A.C. phenol coefficient and the use-dilution confirmation test indicate that a considerably lower concentration of the proposed disinfectant is required to kill the test organisms effectively, than is required to do an equivalent job using the modified phenol coefficient method, *E. coli* being the test organism. Since the modified phenol coefficient test is more severe than the standard A.O.A.C. test method, and one which would more nearly simulate the use conditions in a latrine bucket, a concentration of 2,000 ppm of the proposed disinfectant in the latrine bucket is suggested in order to maintain a reasonable margin of safety.

Current studies are being conducted on the use of 75 per cent sodium chloro-o-phenyl phenate and 25% sodium-o-phenyl phenate mixture as a general purpose disinfectant for walls, floors, etc. The results of these studies will be reported at a later date.

17. German Patent 615,133, Verfahren zur Trennung von 3- und 5- chlor-2-oxydiphenyl June 27, 1935.
18. Weissberger, A., and Salminen, I. F., The Identity of 3- and of 5- monochloro-2-hydroxydiphenyl. *J. A. C. S.* 67, 58-60, 1945.

nomic advantage over the present metal can, in addition to the design flexibility possible with a moulded container.

The Future

What of the future of light duty detergents based on anionic surface active agents? Two items are of immediate interest in this connection. The first is the possibility that new or radically improved detergents may become available. The extensive investigations of Ziegler's ethylene polymerization technique being done by the petroleum industry may be a step in that direction. The availability of stably-priced fatty alcohols from this source should at least provide an incentive to re-examine the synthesis of fatty based chemicals which may previously have been unattractive. Whether new products result which will offer sufficient advantages to displace present anionic actives remains to be seen.

Any consideration of future developments in light duty detergents also must not overlook the possibility that a successful soap-synthetic combination may be developed. Such a light duty product would probably retain the recognized good properties of soap, while eliminating or reducing to an acceptable level the disadvantages which have been directly responsible for the growth of the synthetics in the household detergent field.

The light duty detergent field has been anything but static during the past quarter century. For the past ten years the word upheaval better describes its condition. Throughout the entire period, the dominant position of the anionic surfactant has never been seriously challenged. Despite the continuing changes in products and the raw materials used in their manufacture, a continuation of this position appears assured for some time to come.

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Table 10. Adsorption on Carbon Black (101) (325 m^2/g)

Molecule	No. C Atoms Alkyl Chain	Total Area Blocked/Mol A^2	Total Area Blocked by Alkyl Chain A^2	Area Blocked /Alkyl C Atom A^2
Benzene	0	41	0	—
Xylene	2	63	22	11
Naphthalene	0	67	0	—
Anthracene	0	83	0	—
(1 x C_8) Naphthalene	8	120	53	6.6
(1 x C_{16} + 1 x C_2) Naphthalene	18	180	113	6.3
(2.7 x C_{14}) Naphthalene	38	360	293	7.7

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Detergent Adsorption

(*From Page* 52)

The addition of sodium chloride to secondary sodium alkyl sulfate solutions gave a smooth increase in adsorption (on cotton), the rate increase diminishing with the salt concentration (25).

A suggested mechanism for builder action was based on the idea that electrolyte with high anionic charge caused an increase in the rate of micelle dissociation, resulting in an increased rate of adsorption of surfactant anions on hydrophobic solid surfaces (91). Others (79) point out that the normal rate of adsorption in the presence of builder is quite high, hence rate of sorption unless accompanied by change in equilibrium conditions would not be expected to increase the amount adsorbed in a short time (10 minutes), and that micelle dissociation is therefore not the only basis on which to explain builder action.

The effect of electrolytes on films of long chain anions was demonstrated as independent of the nature of the anion in solution as observed from energy relationships and by experiment: Only ions of sign opposite to the film had an appreciable effect upon adsorption (18). In contrast to anionic surfactants, cationic types (by "Nujol"** mobility measurements) are affected mainly by the valency of the added anion (83).

Radiotracer studies of the

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sodium dodecylbenzene sulfonate (NaDDBS), sodium palmitate, sodium sulfate and tetrasodium pyrophosphate (TSPP) on cotton and wool have been made (62). The *rate of adsorption* of NaDDBS on cotton was rapid, being at least 50% complete in 10 minutes and complete in four hours. Adsorption of sodium palmitate on cotton was almost complete in three hours but 16 hours was required for completion. On wool, both the surfactants showed continued increase with time, indicating both physical and chemisorption. Temperature increase generally increased the rate of adsorption, but the rate was not affected by the presence of sodium sulfate.

The effect of *temperature increase* on NaDDBS containing sodium sulfate and/or TSPP was to reduce adsorption, and the effect of the salts on the isotherms was then less pronounced.

Increased amounts of builders in the composition increased adsorption, but TSPP caused lower NaDDBS adsorption than did sodium sulfate. The presence of sufficient TSPP in hard water solutions of NaDDBS resulted in sequestration of the Ca and Mg ions so that the systems showed adsorption values similar to those obtained in distilled water. Higher adsorption was noted in the presence of the combined hard water-surfactant-builder system than for distilled water.

Desorption of NaDDBS from the cotton substrate had the same rate as that of adsorption, initial conditions including water hardness not having marked influence. Desorption of sodium palmitate from cotton in distilled water proceeded very slowly even at higher temperatures, but the rate was considerably higher for hard water, possibly because different materials were desorbed in the two cases. Appreciable amounts of either sodium palmitate or NaDDBS were retained by wool, regardless of the length or thoroughness of rinse.

Tetrasodium pyrophosphate caused a marked change in the shape of the NaDDBS adsorption isotherms, there being no clearcut maxima as with sodium sulfate. Its presence, alone or in combination with sulfate, reduced the magnitude of surfactant adsorption. That this was not competition for adsorption sites on the cotton was proven by using radiotagged P_{32} pyrophosphate. This did not adsorb on cotton under any conditions from NaDDBS solutions in distilled water.

In this work (62) inflections in the adsorption isotherms for NaDDBS and sodium palmitate were found at the cmc*. The shapes of the detergency curves and adsorption isotherms were similar but the location of the maxima did not coincide, and no direct relation between the absolute magnitudes

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of these measurements was found.

In another series of tests (13) radiolabelled NaDDBS and builders were used to attempt to clarify the mechanism of builder action. With the exception of sodium chloride which had little effect, reduction in relative surfactant adsorption on cotton occurred in the following order of increasing effect: Sodium chloride <sodium sulfate <sodium carbonate <trisodium phosphate <tetrasodium pyrophosphate <sodium tripolyphosphate. In these tests, the builder concentrations in polarity of Na ion were the same, and sharp reductions in surfactant adsorption on cotton generally occurred at 1 to 4 x 10^{-3} molar Na ion concentration (except sodium chloride and sodium sulfate at low surfactant solution concentrations.)

Surfactant adsorption on a soil of silica, lamp black, ferric oxide, iron powder, and magnetite, as a function of constant builder anion concentration gave the same order of reduction in adsorption as for cotton, but with increasingly marked reduction in total adsorbed when phosphates were used.

Phosphate builders within controlled pH ranges of 8.8 to 11.3 showed no pH effect upon surfactant adsorption on cotton.

The adsorption of the builders in combination with NaDDBS on cotton and on carbon black gave the order already described. With the exception of trisodium phosphate, negligible amounts of builder anion were adsorbed. In the absence of surfactant the results were almost identical, and negligible amounts of builder were adsorbed. No quantitative relation could be found between the decrease in adsorption of NaDDBS as a function of increase in valence of builder anion, but the qualitative relation was good.

The superior suspending power of sodium silicates for ilmenite has been ascribed to the preferential adsorption of silicate, either as simple anions or possibly as aggregates. That polyphosphates were capable of exerting protective action in preventing sedimentation in concentrations as low as five to 10 parts per million was also attributed to selective adsorption of the anion (67, 81).

Builders increase the extent of surfactant adsorption either on soil or substrate: These increases are at least near the maxima for the pure surfactants, which also show some specificity of effect. The effect of builders on the adsorption of one homologous series of surfactants was to increase the maximum adsorption and to lower by two carbons the compound exhibiting maximum affinity for the fiber.

Increased amounts of builders increase adsorption but tetrasodium pyrophosphate (TSPP) leads to lesser NaDDBS adsorption than does sodium sulfate.

Desorption of NaDDBS from cotton occurred at the same rate as adsorption, but desorption from wool was incomplete regardless of the length or thoroughness of rinse (sodium palmitate also conformed to this pattern).

Presence of TSPP alone or with sodium sulfate reduced the magnitude of surfactant adsorption for both soil and cotton. None of the builders was adsorbed by either cotton or wool.

(To be Concluded)

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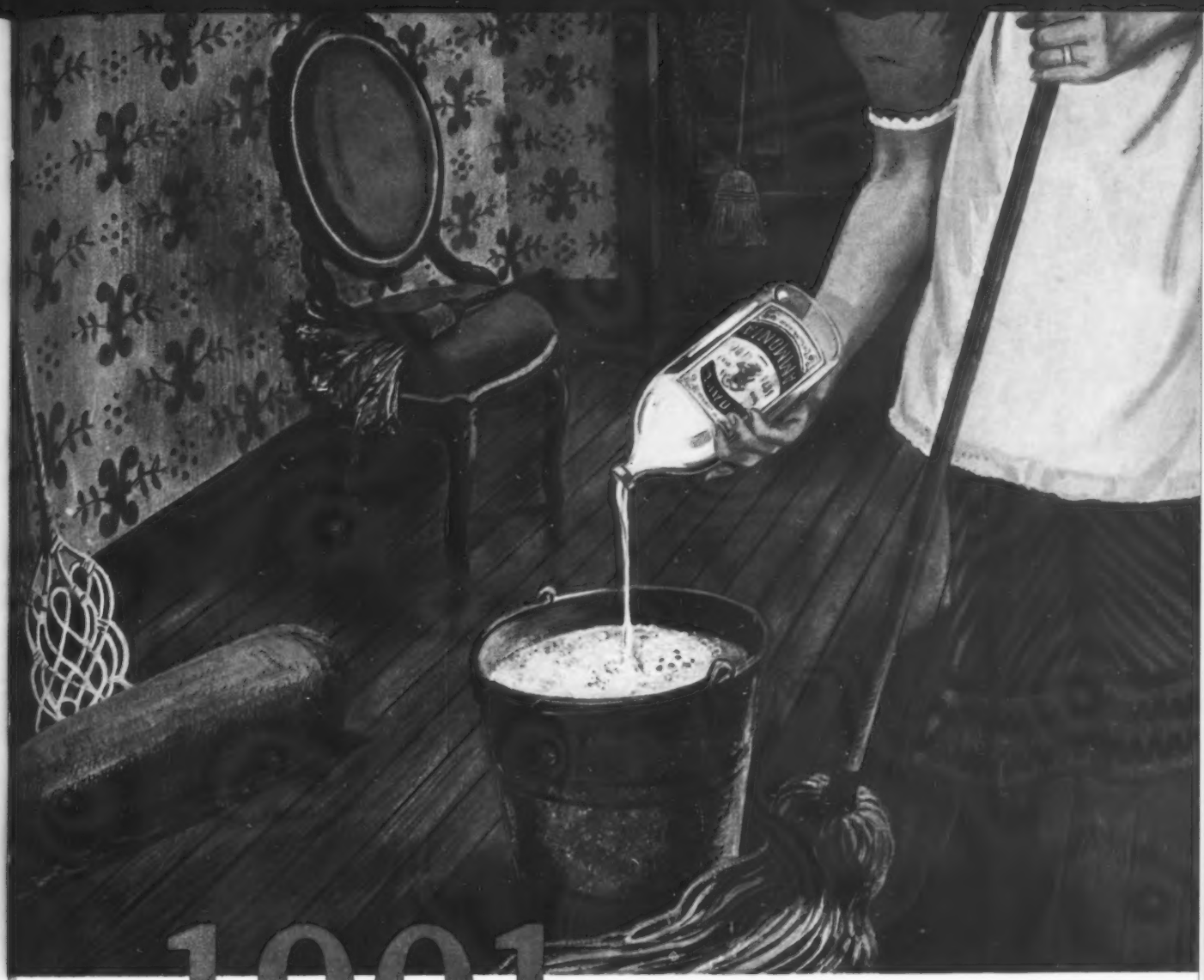

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UCON Propellant 114 Dichlorotetrafluoroethane

Packaging...

AEROSOLS · LIQUIDS · PASTES · POWDERS

British aerosol chemist Alfred Herzka (right) studies containers for nitrogen propelled aerosol dentifrice at G. Barr and Co., Chicago aerosol loader. George Barr, president, conducted Mr. Herzka on plant tour. Head of aerosol development projects for The Metal Box Co. operation at Alperton Middlesex, England, Mr. Herzka is co-author of "Pressurized Packaging (Aerosols)," just published.

Automotive Chemicals
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Laundry Bleach
Metal Cleaners
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Shampoos
Shave Products
Soaps
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and other
Chemical Specialties

A market for over 28 billion packages annually

A PACKAGING TEAM NEEDS

The package can determine the success of a product. And so important has the packaging factor become that more and more companies are making packaging decisions through *teamwork.* Specialists from various departments offer their know-how and experience. But to make a packaging team complete, it needs an outside viewpoint. It needs an Anchor Man.

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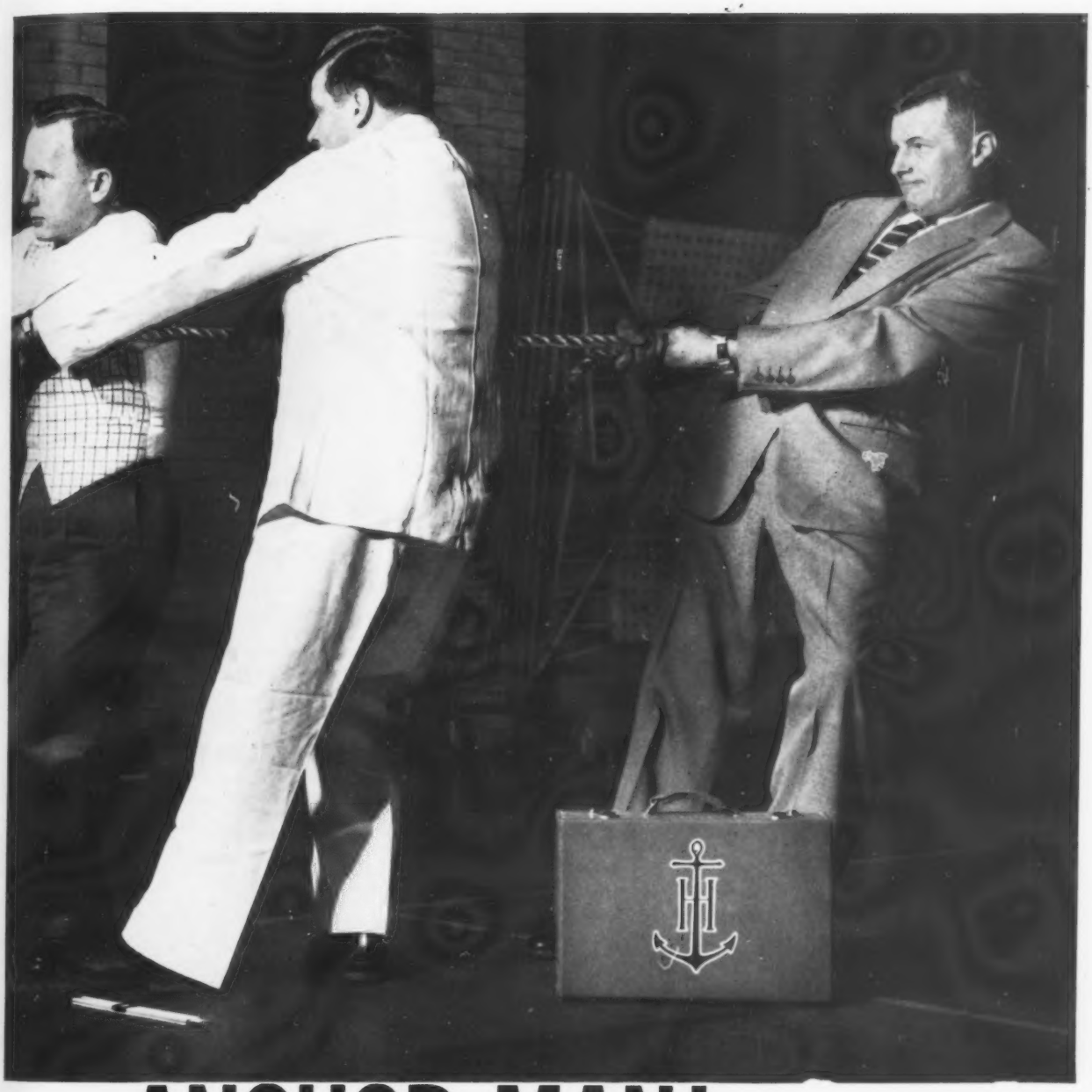
He offers a complete line of Anchorglass® containers—amber, crystal and green—in all standard sizes and styles. The quality of these containers is safeguarded by hundreds of daily checks, tests



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- perfect fusion . . . full surface coverage . . . proper, uniform film thickness . . .
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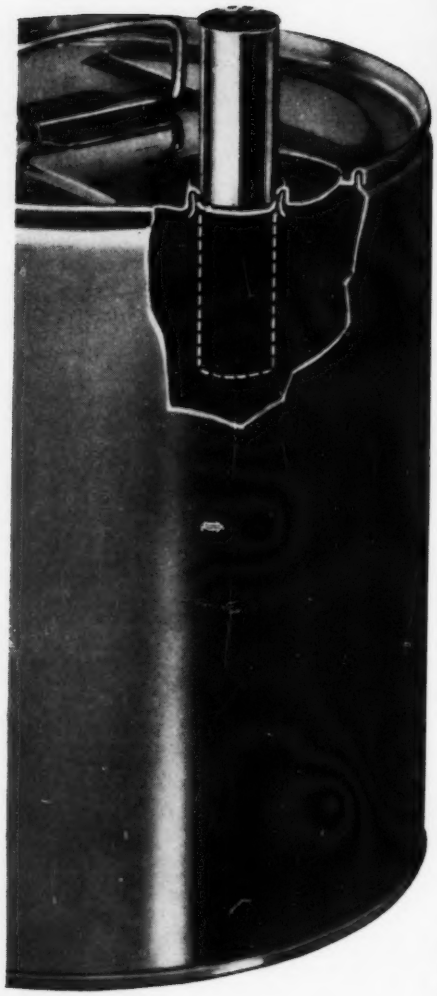

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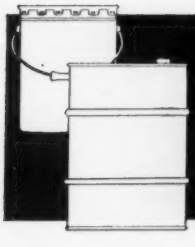

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Packaging NOTES

Crown Names Two

Crown Cork and Seal Co., Philadelphia, has appointed Glinther R. Ludwig manager of closure sales and Alfred L. Hartung manager of can sales for its mid-west sales region, it was announced in December by S. V. Tuttas, vice-president and director of sales. Both positions are newly created.

Glinther R. Ludwig

Alfred L. Hartung

Mr. Ludwig joined Crown in 1936 and has served as a sales representative specializing in closure sales to the food industry. In his new post he makes his headquarters in Chicago.

In the canning industry for 25 years, Mr. Hartung went with Crown last November. He was previously associated with National Can Co., and prior to that was with American Can Co.

Maryland Adds Amber

Maryland Glass Corp., Baltimore, has added an amber glass to its line of glass packages, it was announced recently by the company. The firm also manufactures jars and bottles in blue glass and clear flint glass.

—★—

New Bulk Shippers

A new type expendable bulk container of wirebound-corrugated design with a polyethylene or Kraft bag liner for granules and powders has been reported by the Package Research Laboratory, Rockaway, N. J. It is now being used for polyethylene resins and cellulose acetate molding powders in two basic sizes: a "truck shipper" with a 22.9 cubic foot capacity which holds 1,000 pounds, and a "rail shipper" with a capacity of 50 cubic feet.

The rail shipper is said to compare favorably with the established cylindrically divided corrugated rail shipper in its capacity, weight of contents, number of containers per freight car, and bulge per face. Through its liner the shipper also offers moisture and contamination protection.

Neither design is patented, according to Package Research, who says the shippers are currently being made by Indianapolis Wirebound Box Co., Fernwood, Miss., and Continental Box Co., Houston, Tex., division of General Box Co. Other wirebound manufacturers are reported to be going into production to meet demand for the shipper.

—★—

Knox Tops Sales, Earnings

Net sales of Knox Glass, Inc., Knox, Pa., totaled $36,808,133 for the fiscal year ended Sept. 30, 1958, an increase of 13 per cent over sales of $32,699,145 in 1957. Net income increased by 53 per cent from $814,742 in 1957 to $1,248,092 last year. Earnings per share of capital stock were $2.63 in 1958, compared with $1.71 the previous year.

—★—

Canco Units Consolidate

Operations and facilities of two former subsidiaries of American Can Co., New York, Sun Tube Corp., Hillside, N. J., and Bradley Container Corp., Maynard, Mass., have been consolidated with the parent company in the newly-formed Bradley-Sun division, it was announced recently by William C.

New plastic handle grip for steel shipping pails, developed by Vulcan Containers, Inc., Bellwood, Ill., is designed to reduce possible damage to lithographed, decorated, or painted surfaces of containers caused by abrasion during shipment. The new grip, (foregriund) is said to be resilient, and is claimed will not scratch, dent, mar, or deface either the pail it is attached to or adjacent pails. It replaces traditional wooden grips (background).

FOR BEAUTY...
FOR HEALTH!

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Cosmetics are the leading sales producers right now and pharmaceuticals will make the next big market . . . Why? . . . The big buyer of merchandise will buy the items that are easy to operate, are not messy and require no guess work.

Aerosols are the answer and Precision's great laboratory has developed a stream, metered stream, drop or metered drop for such cosmetic products as hand creams, lotions, hair creams, facial creams, depilatories, and for the new market of pharmaceuticals in aerosols, such as vitamins, antibiotics, dietetic sweeteners, cough medicines, tonics.

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STREAM | DROP

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Stolk, American Can president. The new division continues to manufacture and sell plastic and metal tubes and other product lines formerly produced by the subsidiaries.

Kenneth M. Leghorn, former president of Bradley, has been named vice-president and general manager in charge of the Bradley-Sun division, according to Mr. Stolk. Also made a vice-president of the division is Joseph D. Martin, previously president of Sun Tube.

Manufacturing operations are being continued at the former Bradley plant in Maynard and the Sun Tube plants in New Jersey.

—★—

Point of Purchase Neglect

Hundreds of millions of dollars are being wasted by advertisers in exciting consumer interest without taking advantage of it at the point of sale, declared William P. Katz, vice-president, display division, Gibraltar Corrugated Paper Co., Jersey City, N. J.

His remarks were made in a statement issued coincident with the opening of the first national membership meeting of the Point of Purchase Advertising Institute. Mr. Katz noted that although more than ten billion dollars had been spent last year for advertising, less than a billion was spent on point of purchase display. Even though there is stiff competition for the retailer's use of this display material, he added, there is always room for better and effective displays.

—★—

Continental Plans Plant

Continental Can Co., New York, acquired a 15-acre industrial site in Carteret, N. J., recently and intends to build a 175,000 square foot plant for the manufacture of fibre drums at the location, it was announced recently by Peter P. Wojtul, vice-president and general manager of the fibre drum and corrugated box division.

According to Mr. Wojtul, the company plans to have the plant ready for operation during 1959. The initial working force will be about 125 employees.

More Corrugated Box Use

Peter W. Hoguet, president of the Econometric Institute, Inc., New York, predicted that corrugated box shipments would reach a record high in 1959 in line with an upsurge in economic activity. His forecast was made at a meeting of the Fibre Box Association, New York, last month at the Waldorf-Astoria Hotel.

Charles H. Carpenter, vice-president of container sales for the Kieckhefer-Eddy division of Weyerhauser Timber Co., Springfield, Ore., was elected president of the association succeeding Wayne W. Jackson, president of Hoerner Boxes, Inc., Keokuk, Ia.

Also heard at the meeting was Clarence F. Smith, first vice-president, Inland Container Corp.

Winning entries in the third annual National Flexible Packaging Competition held recently at Boca Raton, Fla., and sponsored by the National Flexible Packaging Association, Cleveland, O., and "Paper Film and Foil Converter" Magazine, Park Ridge, Ill., included these in the soap and chemical specialties field. Clockwise from top left the products are Revlon "Aquamarine" bath soap manufactured by Duveen Soap Co., Long Island City, N. Y., with packaging designed and produced by Printon Corp., New York, second place in the cellophane sheets and rolls category; "Dial" soap, made by Armour and Co., Chicago, with packaging by Reynolds Metals Co., Louisville, Ky., first place in foil, sheets and rolls category and first place in household equipment and supplies; bubble bath manufactured by Allen B. Wrisley Co., Chicago, with packaging by Cellu-Craft Products Corp., New Hyde Park, N. Y., second place in pharmaceuticals, drugs, cosmetics, and chemicals category; "Chemwipe" household cloths produced by Manard Products Co., New Rochelle, N. Y., with packaging by Wrapture, Inc., Flushing, N. Y., merit award in polyethylene bags and pouches and a merit award in household equipment and supplies; and "Vi-Lan" hand cleanser manufactured by Dameron Enterprises, Louisville, Ky., with packaging by Kennedy Car Liner and Bag Co., Shelbyville, Ind., merit award in the miscellaneous film bags and pouches category.

your product belongs

in glass by Brockway

What makes a product belong? Acceptance by the consumer public . . . acceptance for the product itself . . . and acceptance for the container in which it is presented for sale. • A good product is greatly enhanced at the point of sale when presented in an attractive glass container . . . a glass container by Brockway. • Brockway provides individuality in a glass container . . . the kind of individuality that makes your product stand apart from all the rest, thereby providing a strong advantage at the point of sale. • A product that is worthy of consumer acceptance deserves a quality glass container by Brockway.

SYMBOL OF QUALITY · GLASS CONTAINERS ·

BROCKWAY GLASS
COMPANY, INC., Brockway, Pennsylvania
Sales Offices in Principal Cities

Evolution of design of can for "Gre-Solvent" hand cleaner of Utility Co., New York, is graphically shown by photograph. From top to bottom are the old, transitional and new designs, the only three made for this 55 year-old product. Original, cluttered design gave way about 10 years ago to more modern treatment, which cut down copy around trade name. Latest version of the design includes use of white reverse letters on solid red background and overall lemon yellow color as compared with earlier chrome yellow.

New "Gre-Solvent" Can Design

THE adoption of a new design for the metal can in which "Gre-Solvent" hand cleaner is packed was announced recently by David C. Stutts, executive vice-president of Utility Co., New York, maker of the 55-year-old product.

The new design for the lithographed can represents the third change made in the appearance of the package since the introduction of "Gre-Solvent" in 1903. Two new colors (red and a new shade of yellow) have been added to the current version of the package. In addition the trade name now appears in reverse letters on solid red background and the over-all color of the can is a lemon yellow rather than the chrome, or darker yellow of the two previous cans. In general, the new package design is cleaner and certainly less cluttered in appearance than the original package (shown at top in photograph above.) The slogan, "cleans hands clean," which appears fairly prominently beneath the trade name on the label design adopted about 10 years ago, has been subdued by the use of smaller type and placed above the trade name on the current can. The words, "hand cleaner," in quite bold type replace the slogan beneath the trade name. Otherwise there has been only one other modification between the most recent two cans. The current one also carries a circle in red around the trade name, whereas on the previous "Gre-Solvent" can the circle was yellow.

The addition of the two colors has resulted in a "more striking" container which is making itself felt in increased sales, according to Mr. Stutts. Dealers report that the new design for the slip top container creates more interest among potential customers, who formerly had not been aware of the product on the dealers' shelves, Mr. Stutts reported.

As with the previous can, the front and back of the package are identical. Thus, no matter how the can is faced on the shelf, the trade mark or a portion of it is always visible. This design enables shelf stockers to face cans forward with no more than a quarter turn.

In addition to the one pound can shown, "Gre-Solvent" is also packed in three, six, and 13 pound containers. The can shown was designed by Mr. Stutts and is produced for his firm by American Can Co.

"Gre-Solvent," a popular hand cleaner for mechanics, printers, painters, plumbers, farmers, engineers, etc. for more than half a century, also finds wide use in the household as a cleaner for kitchens, utensils, tile, bathrooms, painted woodwork, marble, glass and white wall tires, the copy on the container proudly proclaims.

Utility Co. was founded in 1903 by David G. Holmes, who was previously in the export business. The owner of one of the first automobiles in New Jersey, Mr. Holmes was well aware of the problem of cleaning up after the numerous repairs involved with the early "horseless carriage." As a result, he developed a product to clean his hands and decided that it was so good possibly other automobile owners would be interested in buying it.

He started his business on Beekman Street in New York City. Four years later he moved the firm to its present location at 636 W. 44th St.

Upon the death of Mr. Holmes in 1944, his daughter, Miss Marion Holmes, became president of Utility. The third generation of the Holmes family is now represented in the business by the grandson of the founder, David Paterson, who is secretary.

In addition to "Gre-Solvent," Utility manufactures a full line of powdered industrial hand soaps as well as a waterless hand cleaner, "Cope," which was introduced by the firm about five years ago.

—★—

Henry Fink Dies

Henry A. Fink, 76, a retired vice-president of Continental Can Co., New York, died Nov. 25 in New Rochelle (N. Y.) Hospital after a long illness.

FIRST... UNDER PRESSURE

Pressure packaging is pushing many different kinds of products to the top in today's tougher sales race . . . with the help of Crown. Crown made the first aerosol package . . . has produced more than any other manufacturer . . . is the only source of both seamless and fabricated aerosol containers. Crown research, experience and facilities are unexcelled in the aerosol packaging field. Let us show you how to put your product under pressure . . . profitably.

for cans · closures · crowns · machinery

CROWN

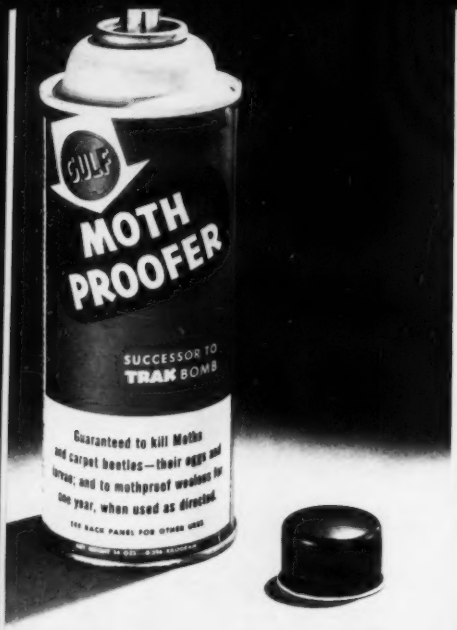
CROWN CORK & SEAL COMPANY, INC.
9300 Ashton Road, Philadelphia 36, Pa.

New lithographed can for its spray-on "Speed Shine" for shoes of all colors was introduced recently by Universal Spray Can Corp., New York. Available in two can sizes: six and 12 ounces, which hold five and 11 ounces of product, respectively, units retail for 89 cents and $1.39. Cans are by Continental; valves by Aerosol Research, and Aerosol Techniques is the filler. Cap is lithographed on top and front and back.

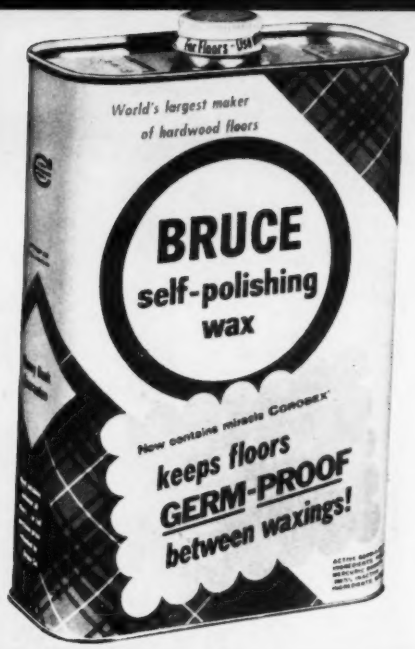
What's New?

A switch to exclusive use of non-drip metal cans for the packaging of its "Breath O' Pine" household cleanser, disinfectant and deodorant was made recently by Brondow, Inc., Mount Vernon, N. Y. The 22 and 12 ounce cans are lithographed with an iridescent green background and a darker green and white panel on both front and back. Rear panel carries directions for product's use. A bright yellow starburst lithographed on front of container proclaims use of the non-drip can is new. Cans are by American.

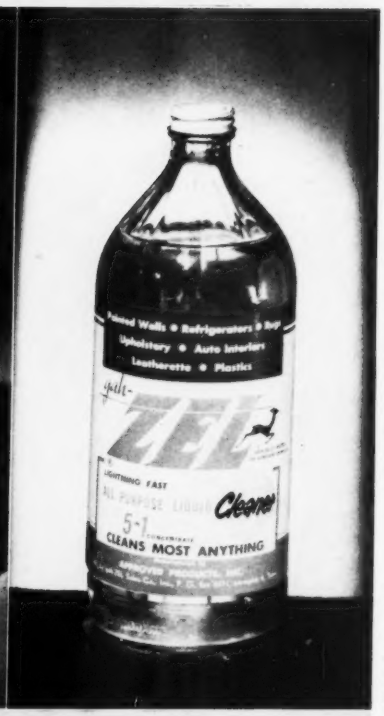
New package for "Fab" heavy duty detergent of Colgate-Palmolive Co., New York, features gold foil wrap to make package moisture proof. At right is previous package which has over-all blue design, with white reverse and lighter blue letters. New package design resembles earlier one, with background, of course, gold, overprinted with matte dots. Package is first powder detergent carton claimed to float.


GULF
MOTH PROOFER
SUCCESSOR TO TRAK BOMB
Guaranteed to kill Moths and carpet beetles—their eggs and larvae; and to mothproof woolens for one year, when used as directed.

"Gulf Moth Proofer," product of Gulf Oil Corp., Pittsburgh, Pa., has succeeded the company's old "Trak" bomb. Packaged in a 14-ounce container from Continental Can Co., New York, in Gulf's orange and blue colors, the product is filled by Peterson Filling and Packaging Co., Danville, Ill. Seaquist Manufacturing Corp., Cary, Ill., supplies the valve and West Penn Manufacturing and Supply Corp., Brackenridge, Pa., provides the over-cap.



E. L. Bruce Co., Memphis, Tenn., offers a self-polishing wax with germ-proofing action. Lithographed cans are by Continental Can Co., and American Can Co., both New York, with the closure division of Armstrong Cork Co., Lancaster, Pa., providing the cap and liner. Bruce produces and fills the product at its Memphis plant and adds the bacteriostat, "Corobex," made by Bex Industries, New York, to its formulation.



New mechanical dishwashing compound, called "Klenite," first announced by Selig Co., Atlanta, is reported to remove food stains and grease. Packed in a 2.5 pound package with a punch-out pouring spout, "Klenite" is designed for home and institutional use. The package is green and white.

A new, all-purpose liquid cleaner tradenamed "Gah-Zel" was introduced recently by Approved Products, Inc., Memphis, Tenn. Odorless and non-inflammable, it is designed for home laundry and household cleaning use. "Gah-Zel" is packed in pint, quart, half-gallon, and gallon bottles. Owens-Illinois Glass Co., Toledo, O., supplies bottles and metal closures, wrap-around labels are provided by McCowat-Mercer Press, Inc., Jackson, Tenn.

A rigid plastic 24-ounce container introduced recently by Owens-Illinois Glass Co., Toledo, O., provides the package for "Snow-Bol" liquid toilet bowl cleaner produced by Sno-Bol Co., Pontiac, Mich. Red, white, and blue wrap-around label is from King Smith Co., Detroit, with shipping containers from O-I's paper products division. The container has a no-drip pouring spout, ribbings at the shoulder and heel, and the tradename blown into the neck.

A newly designed label is featured on package for "Watkins" moth crystals, made by J. R. Watkins Co., Winona, Mich. First of the packages to be changed is the one-pound friction top can with a blue and gold label, lithographed and supplied by American Can Co., New York. Packaging engineer Charles Magers of Princeton, N. J., designed the new label.

New Franklin's liquid detergent of Franklin Research Co., Philadelphia, features a label design with a photographic reproduction of a sea of suds for a background. The product name is shown in bold yellow and black letters and the suds are bluish. The new label appears on the five-gallon pail and one gallon "F" style can. Detergent may be used in hot or cold water on virtually any surface.

Inland Chemical Corp., 415 Lexington Ave., New York 17, is offering free samples of its "Incco" anti-coagulant rodenticide which is produced in four forms. Tested by the U.S. Fish and Wildlife Service, the formula is said to have the advantages of simpler handling, proven effectiveness, and lower cost.

The household products division of Chemway Corp., Wayne, N. J., is promoting its new "Neo Larvex" mothproof spray with a counter display which can be used as a single or double unit. Each unit contains six aerosol containers.

A new and wider tear-off label (left) provides stronger product identification than label at right on "White King" cleanser of White King Soap Co., Los Angeles. When label is removed, the plain foil-wrapped package is revealed in either pink, turquoise, yellow, or a new pastel green, which harmonize with popular kitchen and bathroom colors. The cleaner's bleach odor has been eliminated the maker claims by the addition of a new perfume.

spray your way

to new profits with

ISOTRON®

Aerosol packaging adds new appeal . . . and new sales . . . to all types of products. And ISOTRON® propellents help to power this marketing revolution. A striking example of growth is in milady's hair dressings and fixatives—products that leaped from low sales volume to over 100,000,000 units a year.

Your product too may profit from spray packaging. Pennsalt's ISOTRON Laboratory offers you *personalized* help in finding out . . . in developing the right formulation . . . choosing the container, valve and propellent that give you top performance. And you can count on the experienced contract fillers listed here to take production worries off your hands.

Why not write or call us today for a *confidential* discussion of *your* new aerosol?

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Aerosol Industries Div. Zenith Drug
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Bridgeport, Conn.
Allied Professional Associates Ltd.
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A-M-R Chemical Co. Inc.
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Armstrong Laboratories
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Strouse, Inc.
Norristown, Pa.
Sun-Lac Inc.
Newark, N. J.
Texas Aerosols, Inc.
Houston, Texas
Thomasson of Pa., Inc.
Norristown, Pa.
Wellston Aerosol Mfg. Co.
Wellston, Ohio
Western Filling Corp.
Los Angeles, Calif.

ISOTRON—The Key to Modern Living

NEW Trade Marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12 (a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of $25 must accompany each notice of opposition.

Royal Coach—This for automobile and furniture wax polishes. Filed May 26, 1958 by Royal Coach Products, Inc., Hollywood, Calif. Claims use since on or about Feb. 20, 1951.

Unico — This for insecticides, fungicides, milcides, herbicides, rodenticides, pesticides, bactericides, etc. Filed Dec. 20, 1957 by United Co-Operatives, Inc., Alliance, O. Claims use since Sept. 1, 1939.

Pine Sola — This for cleaning preparations with incidental disinfecting and deodorizing properties. Filed Mar. 27, 1953 by Dumas Milner Corp., Jackson, Miss., by change of name from Milner Products Co., Jackson, Miss. Claims use since Mar. 4, 1953.

Sandra—This for kelp soap and kelp shampoo. Filed Mar. 6, 1958 by Emma Jane Fouque, doing business as Sandra Cosmetiques Supreme, Los Angeles. Claims use since Oct. 31, 1935.

Actinite — This for activating agent used as an ingredient in detergents and general cleaners. Filed Apr. 15, 1958 by Chemical Service of Baltimore, Inc., Baltimore. Claims use since Feb. 22, 1958.

Fry-Kleen—This for cleaning composition. Filed Apr. 23, 1958 by American-Marietta Co., O-Cedar division, Chicago. Claims use since Dec. 2, 1957.

Beauty in the Morning—This for toilet soap. Filed May 2, 1958 by Sydney Wickham, doing business as Sidney Wickham & Associates, Dallas, Tex. Claims use since Mar. 18, 1952.

Crusader—This for hair shampoo. Filed July 7, 1958 by Hair Strate, Inc., Fort Wayne, Inc. Claims use since Apr. 1, 1958.

Princess Kitten—This for hair shampoo. Filed July 7, 1958 by Hair Strate, Inc., Fort Wayne, Ind. Claims use since Apr. 1, 1958.

Banzoil — This for concrete cleaning preparations. Filed Sept. 2, 1958 by The Hallakahn Co., Chicago. Claims use since Mar. 15, 1958.

Easy Glitter — This for shoe wax. Filed Apr. 11, 1958 by Easy Glitter Wax Co., West Palm Beach, Fla. Claims use since Mar. 25, 1955.

Superbath—This for domestic animal shampoo. Filed Nov. 4, 1957 by Brookfield Laboratories, Brookfield, Ill. Claims use since Apr. 10, 1956.

Danita—This for toilet soap and a bubble-forming detergent preparation for bath use. Filed Dec. 11, 1957 by Les Parfums de Dana, Inc., doing business as Dana, New York. Claims use since Feb. 17, 1958.

Watkins—This for soap, hair shampoo, spot removers, detergent used to sanitize, disinfect, and deodorize, for household and farm use, and concentrated liquid all-purpose cleaner. Filed Mar. 18, 1958 by The J. R. Watkins Co., Wincona, Minn. Claims use since Feb. 17, 1958.

SRO—This for rust remover and metal cleaning composition. Filed Apr. 18, 1958 by Roal Corp., Bernardsville, N.J. Claims use since Mar. 29, 1958.

Texize—This for concentrated cleaner for cleaning washable surfaces; wax strippers; liquid hand soap for commercial use; detergent for dishes; floor cleaner; household cleaner; and rug cleaner. Filed Apr. 28, 1958 by Texize Chemicals, Inc., Greenville, S.C. Claims use since 1946 on concentrated cleaner.

Acqua—This for detergent for household use. Filed Apr. 29, 1958 by Acqua Lina Manufacturing Co., Brooklyn, N.Y. Claims use since December 1955.

Blue Chip — This for all purpose cleaner. Filed May 5, 1958 by S. C. Johnson & Son, Inc., Racine, Wis. Claims use since Apr. 24, 1958.

Zwik—This for tire cleaner and detergent. Filed May 5, 1958 by Zwik Corp., Elkin, N.C. Claims use since Feb. 14, 1950.

Lustretile—This for compound for cleaning and polishing tile, porcelain, enamelware, linoleum, woodwork, floors, walls, concrete, venetian blinds, leather, plastics, metal surfaces, glass, and for removing wax and grease from surfaces. Filed July 18, 1957 by Lois R. Schmidt, doing business as Pittsburgh Chemical Laboratory, Pittsburgh. Claims use since Dec. 17, 1945.

Nuba-Wax—This for shoe polishes. Filed Oct. 2, 1957 by Ralph A. Burke, San Francisco. Claims use since Mar. 1, 1944.

Fast Ree-Noo—This for preparations for restoring automobile finish. Filed Jan. 13, 1958 by Wonder Products Mfg. Co., Bellflower, Calif. Claims use since Jan. 2, 1958.

Poise—This for body deodorants. Filed Mar. 28, 1957 by Louis Bender, doing business as Elbee Sales, Westfield, N.J. Claims use since the latter half of 1952.

Alcotabs — This for cleaning and detergent compound for washing and cleaning pipettes. Filed May 15, 1958 by Alconox, Inc., New York. Claims use since July 12, 1957.

Focus — This for eye glass cleaner and anti-fogger. Filed May 27, 1958 by Hyrol Chemical Co., Chicago. Claims use since May 23, 1958.

A-M — This for polishes and wax polishes. Filed Dec. 23, 1957 by American-Marietta Co., Chicago. Claims use since July 1952.

Sila-Hand—This for hand protective cream. Filed Jan. 13, 1958 by Harriet A. Ramsey, doing business as Warco Laboratories, Gardena, Calif. Claims use since Oct. 1, 1957.

Normax—This for deep cleaning face cream. Filed May 20, 1958 by Chesebrough-Pond's, Inc., New York. Claims use since Apr. 29, 1958.

Sanfax 222—This for cleaning and sanitary chemical compounds and mixtures used in cleaning and unclogging all types of drains and sewer lines. Filed June 24, 1957 by The Sanfax Co., Atlanta, Ga. Claims use since October 1951.

Sanfax TL-12—This for cleaning and sanitary chemical compounds and mixtures used in cleaning livestock stomachs, such as tripe, in the process of being slaughtered for human consumption. Filed June 24, 1957 by The Sanfax Co., Atlanta, Ga. Claims use since October 1954.

Instant Mystic Foam—This for cleaning preparation for fabrics of all kinds sold in an aerosol-type container. Filed Mar. 26, 1958 by Dumas Milner Corp., Jackson, Miss. Claims use since Mar. 20, 1955.

Kenmore—This for household washing detergent. Filed Apr. 28, 1958 by Sears, Roebuck & Co., Chicago. Claims use since Jan. 2, 1956.

Valay-Shine — This for shoe polish in paste-like form. Filed Nov. 16, 1956 by Ralph A. Simpkins, doing business as The Valay Co., Columbus, O. Claims use since May 1956.

Norince — This for polishing preparations having combined cleansing and polishing characteristics. Filed May 20, 1957 by Rustain Products, Saddle River Township, N.J. Claims use since Feb. 15, 1936.

Beauty Best — This for combined cleaning and polishing preparations for automobiles. Filed Oct. 8, 1957 by Union Chemicals, Inc., Shreveport, La. Claims use since May 1, 1957.

Sight-Eze — This for applicators with contained glass cleaner and polish. Filed May 5, 1958 by Herbert J. Kornbluh, doing business as Sight-Eze, Houston, Tex. Claims use since Apr. 18, 1958.

Jester — This for surface polishing solutions. Filed May 9, 1958 by Consultant Sales Service, Inc., Denver, Colo. Claims use since on or about Mar. 1, 1958

Mira*Kleer — This for liquid cleaning and polishing compound. Filed June 6, 1958 by E. E. Price, Kansas City, Mo. Claims use since Feb. 21, 1957.

ST-21 Poly Spray Jet — This for liquid cleaning preparation for general cleaning, de-waxing, degreasing, and disinfecting. Filed Mar. 21, 1957 by U.S. Polychemical Corp., Newburgh, N.Y. Claims use since Sept. 1, 1956.

White Wave — This for liquid detergent for household use. Filed Aug. 29, 1957 by Dumas Milner Corp., Jackson, Miss. Claims use since Aug. 16, 1957.

Easy Glitter Super White—This for tire cleaning composition. Filed Jan. 8, 1958 by Easy Glitter Wax Co., West Palm Beach, Fla. Claims use since Sept. 1, 1957.

FOR AEROSOL CANS

WITH AN UNRIVALED

SALES RECORD...

FOLLOW THE LEADERS TO CANCO

More shaving lather is sold in Canco pressure cans than in all other makes combined. Naturally, there are good reasons for this success!

Canco makes a full line of *guaranteed* pressure cans in seven sizes—with standard one-inch cup openings or individually styled tops. Canco also offers assistance from experienced research men and other skilled specialists.

It's this "know-how" our customers expect and *get* from Canco. So for *any* pressure product, take the leaders' tip—come to Canco first!

CANCO Division AMERICAN CAN COMPANY

NEW YORK · CHICAGO · NEW ORLEANS · SAN FRANCISCO

Write for a free, colorful folder on Canco products and services in the aerosol field. American Can Company, 100 Park Avenue, New York 17, N. Y.

PRESSURE PACKAGING

New Unit For Cold Filling At Aeropak

IMPROVED speed and economy of cold filling operations at the Aeropak Division of DeMert & Dougherty, Inc., Chicago aerosol packaging firm, are claimed to result from a novel heat exchange unit. Said to be the first of its kind adopted by an aerosol loader, the ammonia-jacketed "Votator" heat exchanger was especially adapted for this purpose by Girdler Process Equipment Division of Chemetron Corp., Louisville, Ky. Aeropak lines handle paints, enamels, insecticides, room deodorants, and a number of other household chemical specialties. A line may be changed from one product to another several times a day.

Novel heat exchangers are part of cold filling lines set up by Aeropak in the new plant replacing facilities destroyed by fire on May 24, 1957. The old plant was located at 3001 West 47, Chicago. Current address is 5001 West 41.

The new chilling unit is said to raise production speeds to 120 containers per minute. It cools the product continuously and rapidly from room temperature to 0°F. Temperatures are maintained by an automatic control device. The product is continuously mixed by a rotating shaft and two rows of floating scraper blades inside the "Votator." The scrapers also prevent formation of an insulating product film on the unit's inner walls, which would impair efficiency.

The chilled mixture is pumped to the filling line where propellant is added and the container is capped. When the contents return to normal temperature, expansion of the gas provides pressure.

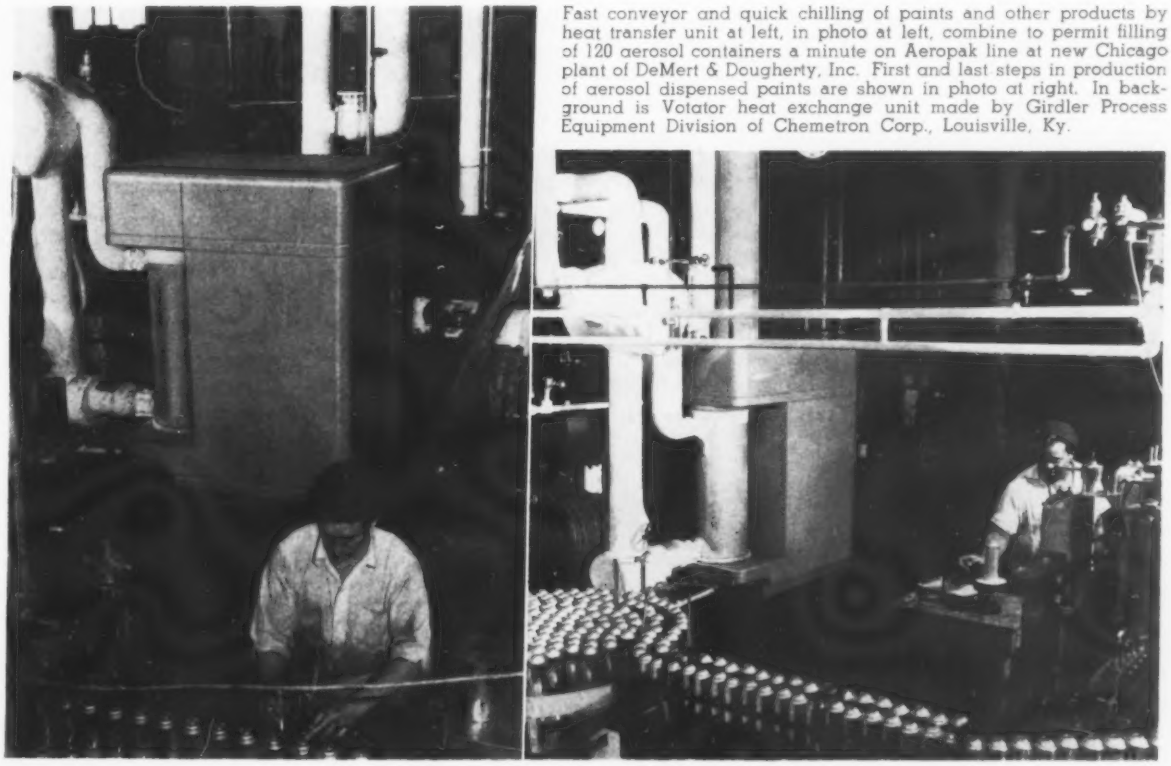
The new exchanger replaces a unit consisting of 200 to 400 linear feet of refrigerated tubing. The "Votator" system has only nine square feet of heat transfer surface compared with about 100 square feet of surface in a conventional tubular heat exchanger.

Before any change in product or color could be made, the previous tubular system had to be pumped out and thoroughly flushed with solvent. In addition to the solvent, all the product, sometimes as much as 25 gallons, was lost. By contrast, the "Votator" unit contains only about one gallon of material at any one time. Losses of product and solvent are much reduced, and labor required for any switching of product is cut considerably.

★

VCA Cuts Valve Prices

A 10 per cent cut in the prices of metered valves, "Mist-Top" actuators, and stainless steel containers, was announced recently



Fast conveyor and quick chilling of paints and other products by heat transfer unit at left, in photo at left, combine to permit filling of 120 aerosol containers a minute on Aeropak line at new Chicago plant of DeMert & Dougherty, Inc. First and last steps in production of aerosol dispensed paints are shown in photo at right. In background is Votator heat exchange unit made by Girdler Process Equipment Division of Chemetron Corp., Louisville, Ky.

WE RECOMMEND NITROSOLS in PLASTIC COATED Wheaton GLASS

This is a container subjected to 350 pounds hydrostatic pressure before bursting. An adequate margin of safety is assured above the recommended gassing pressure.

YES . . .

Nitrogen, Carbon Dioxide, Helium, Argon or any compressed gas can safely be used in plastic coated glass containers. The low potential energy of these gases permit a pressure of 90 pounds. By observing a minimum headspace of 25%, maximum extraction of product is assured. Container sizes can range to 36 ounces.

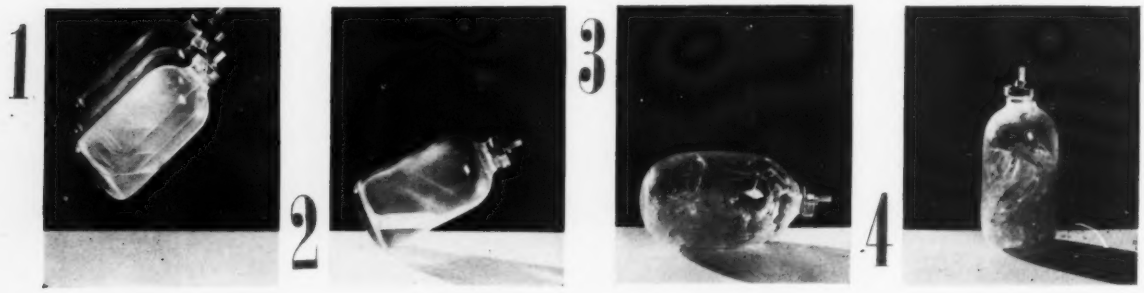
Our chemists will be pleased to advise you on your specific problems.

Plastic Coating

- improves pressure retention
- prevents weakening scratches
- adds resistance to breakage
- prevents flying particles on breakage

WHEATON PLASTICS COMPANY
MILLVILLE, NEW JERSEY

Shown here are actual photographs illustrating a typical sequence of breakage. (1) The bottle is dropped, (2) impact causes breakage, (3) the plastic expands and balloons to hold the released pressure, gradually venting the gases, and (4) returning to its original form. Only Wheaton containers will perform in this safe way.



by Philip Sagarin, president of Valve Corp. of America, Bridgeport, Conn. The new prices went into effect Jan. 1.

The decrease was brought about by increased sales and improved production facilities at the firm's plant, which included new equipment and more production line automation, Mr. Sagarin said. He foresaw further reductions if developments upon which the firm is currently working result in the increased use of metered valves.

—★—

Top Shulton Commercial

Spot radio commercials for "Slug-A-Bug" aerosol insecticide produced by the fine chemicals division of Shulton, Inc., New York, were rated among the top six in the third annual nationwide survey conducted recently by John Blair & Co., New York, radio and television representatives. The survey was conducted among consumers as well as radio, advertising and broadcasting personnel.

—★—

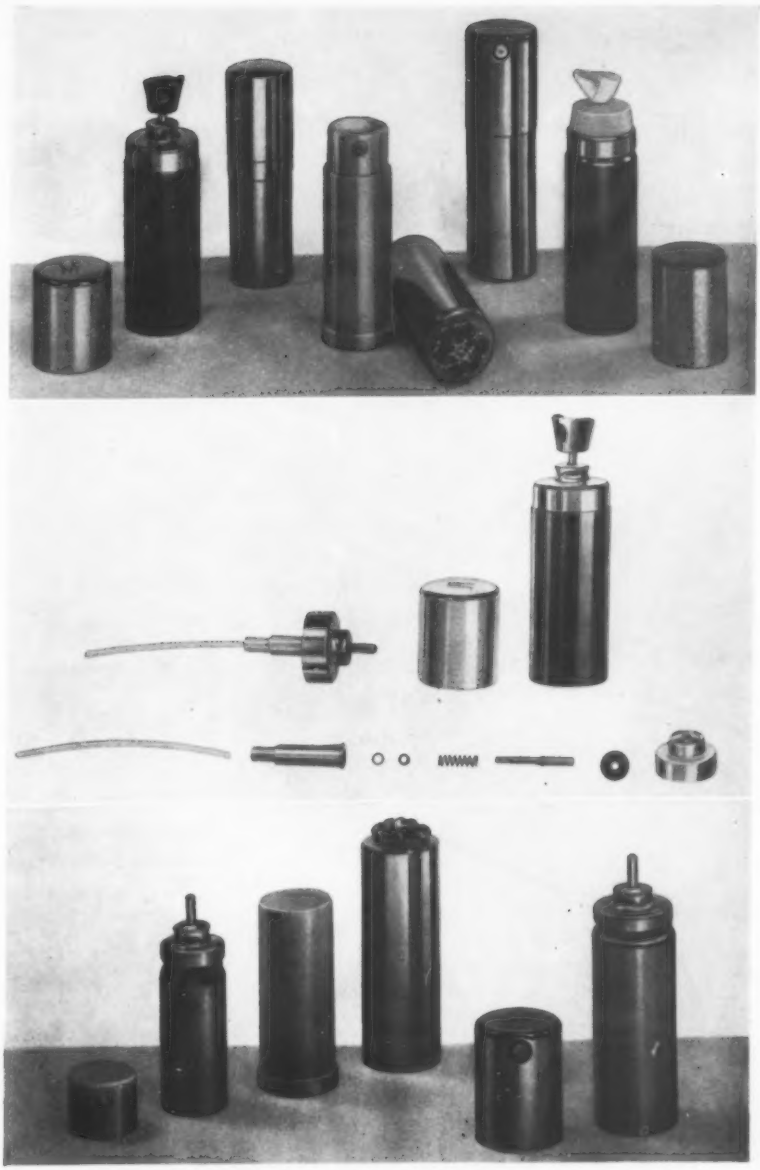
Perfume Aerosols Popular

Aerosol packaging of perfumes is becoming more popular for a wide range of perfumers reports Valve Corp. of America, Inc., Bridgeport, manufacturer of aerosol valves.

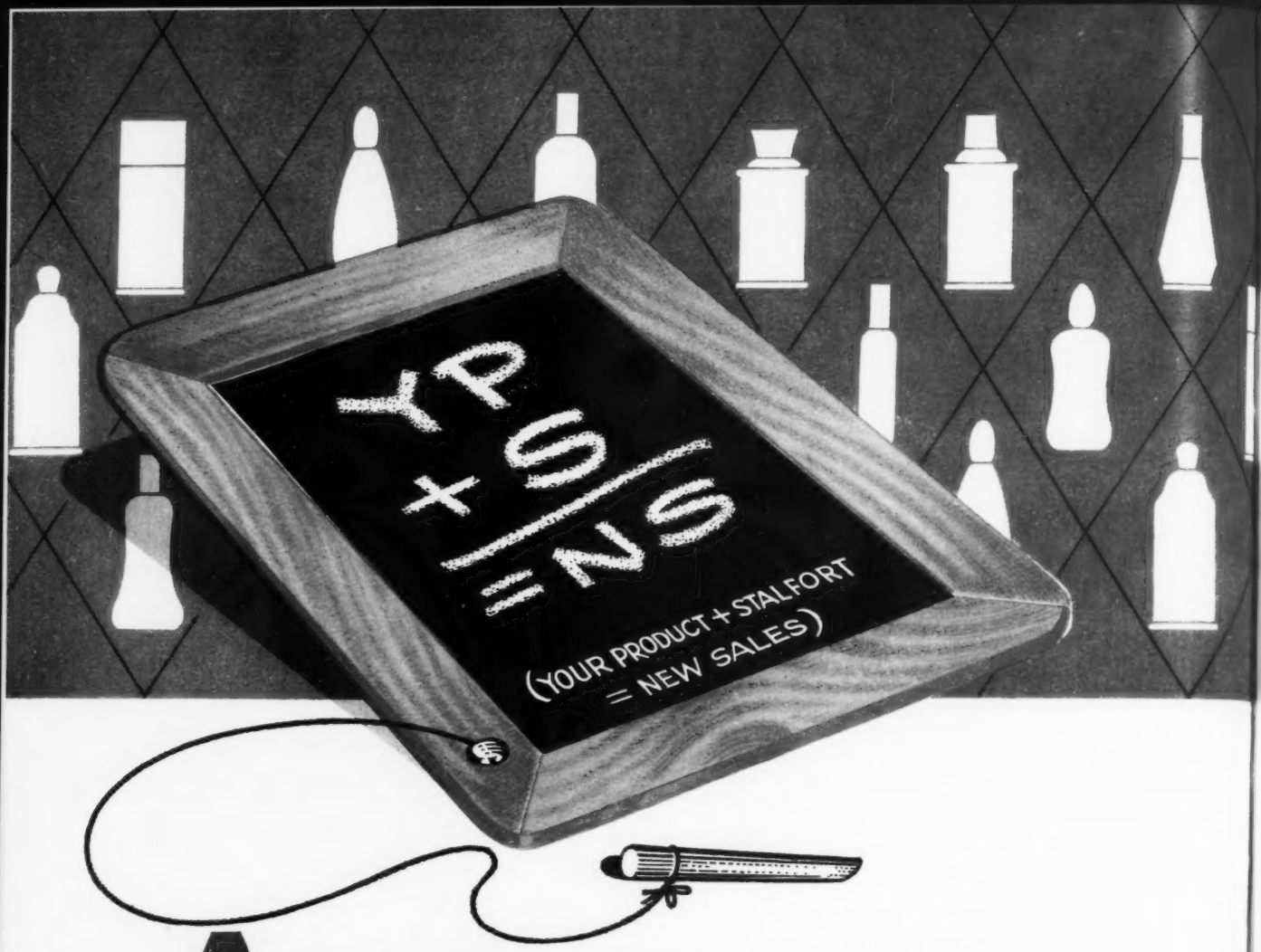
The perfumes are packaged in purse sized aerosol containers with metered valves manufactured by VCA which emit only a predetermined amount of perfume with each application of pressure.

Each container unit is actually two containers. There is an outer container, basically ornamental, which holds the inner container and valve assembly, and is made of metal, glass, plastic, or cardboard or a combination of these materials. The inner container, which holds the perfume, is made of stainless steel to prevent corrosion due to chemical reaction.

The valve assembly includes valve, valve actuator, and tube. Various valve actuators are offered, each determining the type of spray desired. According to VCA, one of the main features of its units is the adaptability of the same valve assembly and stainless steel inner container to dispensers of varied price range and manufacture.



These are some of the popular types of purse-size perfume dispensers using metered valves made by Valve Corp. of America, Bridgeport, Conn. In top picture unit at left shown in two parts has a 10 cc. inner glass bottle made by Wheaton Plastics Co., Mays Landing, N. J., an outer case and over-cap by Bridgeport Metal Goods, Bridgeport, Conn., and valve assembly by VCA. Unit second from left is four-piece Bridgeport Metal container with VCA 8 cc. stainless steel inner container and valve assembly. Dispenser in center is a three-piece, 8 cc. plastic shell and brass over-cap (lying on side) by Richford Corp., Oceanside, N. Y. Unit second from right has an 11 cc. aluminum container by Peerless Tube Co., Bloomfield, N. J., with VCA brass mist-top metered valve. At right is 11 cc. Peerless aluminum container with VCA plastic button and metered valve. Over-cap is by Metal Fabrications, Waterbury, Conn. Center picture is a composite photo of VCA metered valve. In background left to right is the complete assembly, valve, over-cap, and container with valve and cap inserted. In foreground is an exploded view of the valve showing (left to right) plastic tube, plastic reducer, stainless steel washer, rubber seal, stainless steel spring, stainless steel stem, rubber diaphragm, and aluminum ferrule. Bottom picture shows replaceable and non-replaceable metered valve assembles. At left is four-piece dispenser with 8 cc. replaceable VCA cartridge. At right is non-replaceable 16 cc. aluminum cartridge with brass mist-top assembly.



AEROSOL PACKAGING IS THE KEY TO NEW MARKETS . . .

Limitless new sales horizons are opened to your product when it is aerosol packaged. Your packaging picture is not complete unless that product is available to the ever growing millions of consumers who are demanding the modern convenience of aerosols.

STALFORT will fill your liquid or powder concentrate in a metal or glass aerosol container, using an inert gas or liquified propellants. *Or,* we will prepare and package your own aerosol product in accordance with your own formula. *Or,* we will develop a formula for you and package it.

Your inquiries are invited; and they will receive the benefit of experience that pioneered and played a prominent part in developing today's aerosol techniques.

CUSTOM PACKAGING . . . . . .
Stalfort also packs private label cleaners, waxes, dyes, etc., in regular glass or tin containers.

JOHN C. STALFORT & SONS, INC.
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STALFORT

a leading name for over 90 years . . .

AEROSOL SUPERMARKET

ONE of the real highlights of the 45th annual meeting of the Chemical Specialties Manufacturers Association, held in New York, last month, was the aerosol supermarket. Conceived as a unique press party and a novel way to celebrate the 10th anniversary of the Aerosol Division of CSMA, the supermarket attracted 130 editorial representatives of the consumer and trade press, as well as people from radio, television and the press services. The idea was that of Joseph J. Tomlinson, General Chemical Division of Allied Chemical Corp., New York, who handled most of the details. Members of the aerosol publicity committee manned the supermarket as guides and clerks. They were outfitted in white aprons. On the front of each was a large red square bearing the inscription "C.S.M.A. Aerosol Supermarket . . . 10th Anniversary Aerosol Division." The committee worked most of the night prior to the "grand opening" on Dec. 8 to set up the supermarket.

Following the visit by editors who, armed with real shopping carts, were permitted to take as many samples of aerosol products as they wished, the show, or what was left of it, was thrown open to persons attending the convention.

As can be seen from the pictures on this page, the supermarket was realistic to the last detail. In addition to the checkout counter, shopping carts, and shopping bags, all standard equipment in the grocery supermarket, there were floor display stands and racks, and shelves ("gondolas"), all neatly labeled.

Close to 7500 aerosol products were provided by 150 aerosol loaders and/or marketers. Product types represented ranged from insecticides, dentifrices, and hair sprays to pressure operated boat horns.

A giant mobile, with cutouts of aerosol containers to represent various products which dominate the market, was the "centerpiece" for the supermarket.

—★—

Continental Names Downey

The appointment of Roy B. Downey as manager of the Zanesville, O., plant of the Hazel-Atlas glass division of Continental Can Co., New York, was announced last month by J. Gordon King, division general manager.

With Continental for 10 years, Mr. Downey previously was manager of industrial engineering for the division and has worked for the metal division in industrial engineering posts. In his new position he replaces Fred N. Peregoy who retired after 34 years with Hazel-Atlas.

Also announced was the appointment of Gerald F. Adler as acting division manager of industrial engineering. Previously he was division staff industrial engineer.

Joseph J. Tomlinson of General Chemical Division, Allied Chemical Corp., New York, whose idea the aerosol supermarket was and who, incidentally, did all of the leg work in executing it, stands behind checkout counter, examines several of the close to 100 different types of products shown, takes a look at one of the aerosol diecut pieces on the mobile which was the centerpiece for the supermarket. In bottom row of pictures, left, editors wend their way through the supermarket. Center shot is of the aerosol publicity committee dressed as clerks. They labored all night before the grand opening to set up the supermarket. Clerks stand at their stations just before the supermarket opened for editors.

COLTON
-ALPHA
AEROSOL
EQUIPMENT

Rotary Liquid Product Fillers
Rotary Vacuum Purge Crimpers
Rotary Gassers and Shakers
Rotary Testers
Rotary Pressure Fillers
Roto-Index and Laboratory Units

Your inquiries are invited

ARTHUR COLTON CO.
3425 E. Lafayette
DETROIT 7, MICHIGAN

Kent in "Freon" Post

Norman W. Kent has been named to the newly created position of sales promotion manager of

Norman W. Kent

E. I. du Pont de Nemours and Co., Wilmington, Del. He is succeeded in his previous position as manager of the division's central district office in Chicago by Robert B. Sangston. Mr. Sangston, formerly sales supervisor in the Eastern district office in New York, is succeeded by James Gay Gordon III.

Joining du Pont in 1933 as a chemist, Mr. Kent became associated with the Freon division in 1954 as a sales representative.

Mr. Sangston has been with the company since 1942 and joined "Freon" in 1951 as a sales representative.

Formerly a sales representative in the New York area for the past four years, Mr. Gordon joined du Pont in that capacity in 1954.

—★—

Steinbock Joins ATI

The appointment of Marvin Steinbock as director of production for Aerosol Techniques, Inc., Bridgeport, Conn. contract aerosol loader, was announced recently by H. R. Shepherd, president.

Associated with aerosol packaging since its early years, Mr. Steinbock is in charge of all processing at the company's newly expanded main plant and works closely with the new laboratory installations.

Previously vice-president in charge of manufacturing at Powr-Pak—ConnChem, Bridgeport, Mr. Steinbock had held a similar position with Connecticut Chemical Research Corp., also of Bridgeport. He was chief of production engineering for Revlon, Inc., New

New spout and valve, specially designed for toppings and foam products, was introduced last month by Precision Valve Corp., Yonkers, N. Y. The new "upside-down" assembly has a hinged spout which permits quick and easy cleaning of both valve and spout after using without having to remove it from the container. This is the first completely sanitary one piece non-metallic assembly that may be cleaned after each usage with just a swish under the faucet. This new Precision "upside-down" spout and valve is in the same price range as current assemblies.

Aerosol Product Ideas for You!

Are you interested in aerosol pharmaceuticals, cosmetics and toiletries? Cosmetics are the leading sales producers right now and pharmaceuticals will probably make the next big break-through in aerosol marketing. Or are you interested in aerosol household products, whose sales continue to boom?

If so, you'll want the helpful *Product Information Bulletins* prepared by our "Genetron" Aerosol Technical Service Laboratory on many new as well as established products.

They're free. They contain such basic information as: typical aerosol formulations . . . application methods . . . advantages offered by the proposed aerosol product . . . packaging suggestions . . . data on stability, flammability, pressures, etc. . . . competitive products.

The bulletins presently available are listed for your convenience in the coupon at right. Others are continually being prepared, and we will be glad to send them to you if you would like to be put on our mailing list.

One of these product suggestions may be just what you've been looking for to help you tap the dynamic aerosol market! So check the coupon for the bulletins you want and mail it *now!*

genetron®
AEROSOL PROPELLANTS
Putting the "push" in America's finest aerosols

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.

"Genetron" Department
GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL CORPORATION
40 Rector Street, New York 6, N. Y.

Please send copy of Product Information Bulletins checked.

- ☐ Athlete's Foot Medication
- ☐ Burn Remedy
- ☐ Cosmetic Cleansing and All-Purpose Lotion
- ☐ External Analgesics
- ☐ External Personal Deodorants
- ☐ Hair Dressing for Men
- ☐ Hair Shampoo
- ☐ Hand Lotions, Creams
- ☐ Ice Tray Desticker
- ☐ Medicated Hand Lotion
- ☐ Nasal Relief Spray
- ☐ Neomycin Foam
- ☐ Neomycin Spray
- ☐ New Hair Spray
- ☐ Non-Flammable Hair Spray
- ☐ Non-Separating Shaving Cream
- ☐ Poison Ivy, Oak and Sumac Remedy
- ☐ Run Stopper
- ☐ Sarcoptic Mange Spray
- ☐ Spray-on Protective Film
- ☐ Suntan Lotions
- ☐ Wall Cleaner
- ☐ White Shoe Polish
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SCS-19

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Marvin Steinbock

York, for more than six years, and from 1944 to 1949 was plant manager of the penicillin division of Heyden Newport Chemical Corp., New York, and was in charge of its anti-biotic operations overseas.

An expert in all types of mechanical processing, Mr. Steinbock foresees substantial changes and improvements in the techniques of aerosol packaging. He predicts today's cold filling will be replaced eventually by new, more efficient, and less expensive pressure filling.

— ★ —

Heyden Buys "Strobane"

Heyden Newport Chemical Corp., New York, has purchased all rights to manufacture and sell "Strobane," a terpene-based insecticide, from B. F. Goodrich Chemical Co., Cleveland.

The product, currently used in liquid and aerosol formulations for home use, is designed to control flies and other insect pests.

According to S. Askin, Heyden Newport president, the product will play an important role in the company's expanding agricultural chemical program. Full commercialization for large-volume pesticide applications is planned, he said, upon the completion of field studies this year in cooperation with federal, state, and local agricultural agencies.

Carle Conway Retires

Carle C. Conway, who served successively as president and chairman of the board of Con-

Carle C. Conway

tinental Can Co., New York, from 1926 to 1950, resigned recently as a director and chairman of the executive committee.

A leading figure in the development of the American packaging industry, Mr. Conway is credited with bringing about a broadening of Continental's original packers' can line to include general line and other cans. An early exponent of research and product development, he was responsible for the expansion of Continental's metal container operations.

Mr. Conway entered the piano business early in the century and organized the Conway Co. He was elected a vice-president and director of Continental at the time of its incorporation in 1913. Thirteen years later he became president and was elected chairman of the board in 1930, a position he maintained until he was succeeded by Gen. Lucius D. Clay in 1950.

— ★ —

Penick, NYQ Move Offices

S. B. Penick & Co., and its New York Quinine & Chemical Works division have moved their general offices from 50 Church St., to 100 Church St., New York 8. The move was made to modernize the company's facilities and consolidate its operations. NYQ joined Penick in 1951.

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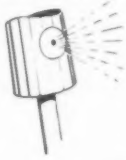
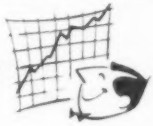
Once Upon A a happy Aerosol man wanted to be more successful. His product was good, but not selling as smoothly or as much as he wanted. Then he got just the he needed for increased success! "I'll try the Quality Newman-Green Aerosol Valves  and see if their exclusive features really do help  profits."

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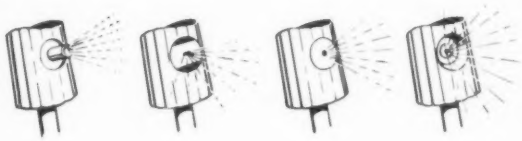

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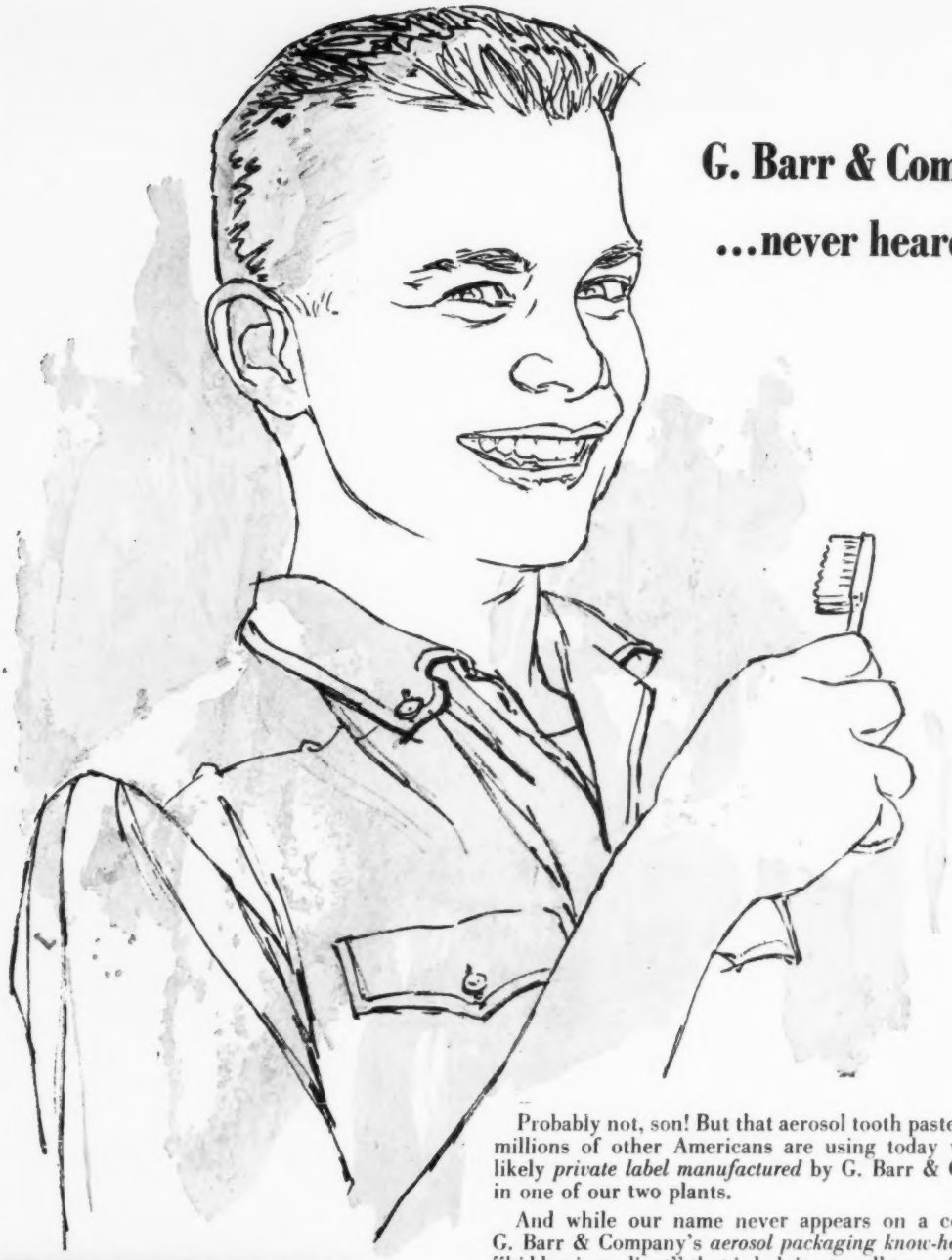

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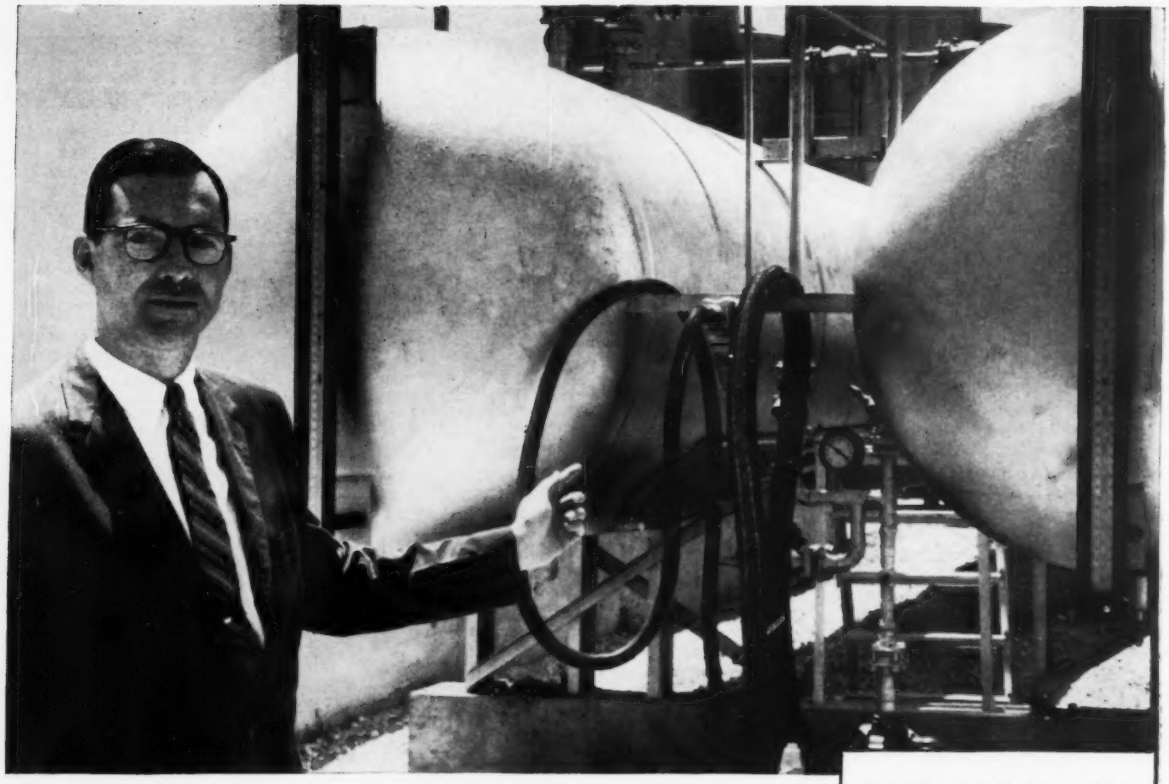

ROBERT WRIGHT, JR., was born in New Jersey and attended Lehigh University. After three years as a lieutenant in the U. S. Army Ordnance and Signal Corps during World War II, he returned to Lehigh, where he received his Bachelor of Science degree in industrial engineering in 1947. After graduation, Bob joined Du Pont as Chemical Supervisor in the Grasselli Chemicals Department. He held a variety of engineering and technical jobs for Du Pont until his sales assignment in "Freon" Products Division. As a salesman for "Freon" in Du Pont's Central District, Bob has put his broad knowledge of the chemical industry to work for custom loaders and aerosol marketers in his territory.

"My customers can call on Du Pont services to help their business grow"

says Robert Wright, Jr., of Du Pont

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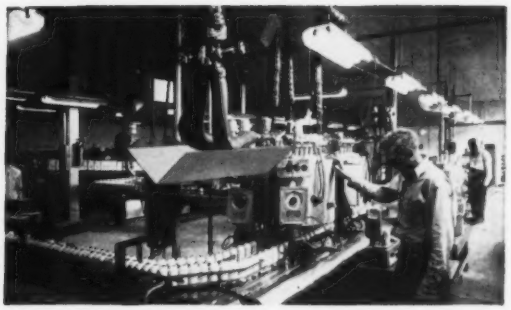

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New direct wax saponification process in microcosm is demonstrated during session of Waxes and Floor Finishes Division at CSMA annual meeting in New York last month. I. Y. Straus, head of Dura Commodities Corp., New York, rear, presented paper during which Charles Little, Jr., Triangle Chemical Co., Atlanta representative of Dura demonstrates method on lab scale. See article beginning on page 145.

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New process to make

Wax Emulsion-Floor Polishes

By Irwin Y. Straus,* Dura Commodities Corp., New York

SINCE the invention and general introduction of dry-bright or "self-polishing" floor finishes some 30 years ago, many changes and improvements have been made and passed along to the ultimate consumer. Partly, these improvements resulted from the availability of new raw materials and chemicals, partly from new ways of putting these building stones together.

It is common knowledge in the trade that different processing methods will produce totally different end products, particularly in the field of dry-bright finishes, even if the formulation is exactly the same.

Two manufacturing techniques are in general use for the production of self-polishing wax finishes. In the original method, referred to as the "water-to-wax" procedure, the waxes and fatty acids are melted together, the amines and/or alkalis are dispersed in the melt to form a soap which acts as emulsifier, and then the boiling water is slowly added to the mass with constant agitation until inversion from w/o to o/w phase takes place. The rest of the water can then be added more quickly and at lower than boiling temperature to bring the product up to volume. If, at an earlier stage, during addition of the boiling water, the mass suddenly turns milky due to some error by the operator or faulty raw materials, the entire batch may be ruined.

After World War II carnauba wax, up to then the main component of dry-bright waxes, began to get competition from partial or even complete replacement waxes and wax soluble resins. To name a few: high-melting oxidized microcrystalline petroleum waxes, imported montan wax derivatives, terpene–phenolic resin, oxidized polyethylene waxes and finally, in 1954, the converted Fischer-Tropsch waxes which are based on controlled polymerization of carbon monoxide and hydrogen. Nearly all these new materials have melting points close to 100°C whereas vegetable waxes melt at around 83° C. Polyethylene wax and Fischer-Tropsch wax have melting points above the boiling point of water.

Wax-to-Water Method

While such high-melting materials appear attractive because of the added heat-protection they give, they also pose new processing problems, at least in dry-bright emulsions. The old "water-to-wax method," which in most cases works very well with vegetable waxes, does not always yield equally satisfactory results when applied to the newer materials. This led to the rather wide-spread adoption of the "wax-to-water" technique. To the author's knowledge, the first practical use of that technique in the floor-wax industry was made in 1948 by the late Dave Stewart. He was a young chemist who had been hired by the Fuller Brush Company of Canada Limited to run their operation in Hamilton, Ont. Coming from the cosmetics industry, he knew of no other way of making emulsions than by pumping the oil phase into the water-phase. When he told his fellow-chemists in Hartford, Conn. that this worked also with waxes, he was met with incredulity. Stewart's approach did work out all right. But it was not until the middle 1950's that the wax-to-water technique became generally accepted as "conventional." It is a testimonial to the rapid progress and restlessness of the industry as a whole that it is taken for granted today.

In the wax-to-water just as in the water-to-wax method, the waxes and fatty acids are melted and emulsifying soaps formed through the introduction of alkaline materials. But instead of incorporating the boiling water slowly into this mass, the mass is dropped into the boiling water with high speed agitation. In other words, the w/o phase is omitted and the necessary fine particle size is produced by instantaneous dispersion of the emulsifier-enveloped wax. This method permits rapid and reliable pre-testing of the batch, by simply withdrawing a sample of the saponified wax and dispersing it in boiling water to check on emulsifiability and predict particle size. Furthermore, a considerable production increase can be achieved without outlays

*Paper presented at the 45th annual meeting of the Chemical Specialties Manufacturers Ass'n., New York, Dec. 9, 1958.

Superiority of GROCO 2 RED OIL revealed in unretouched photograph of low temperature test. Samples of GROCO 2 (left) and competitive red oil (right) were refrigerated at 36°F. for 24 hours side by side. No solids separated out of GROCO 2 RED OIL—it remained so transparent that technician's fingers and steel tray are clearly visible through vial. On right, solid acids separated in large amount.

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The unretouched photo above shows the results of a recent low temperature test between GROCO 2 and a competitive red oil. The GROCO 2 RED OIL (left) remained crystal clear to the bottom of the vial. The other material became heavily opaqued with frozen saturated acids.

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for larger kettles and the attending greater batch risk.

Risks of Older Methods

Neither of these methods can be termed "fool-proof" and results depend greatly on operator skill, timing, temperature control and sometimes plain luck. Rare is the manufacturer who can say that he has never lost a batch in the self-polishing wax department. Each time that happens, there are substantial and practically unrecoverable raw material losses. Pollnow (1) in the opening paragraphs of a paper describing a vacuum pre-sampling device for the water-to-wax process, puts it this way: "The hazards associated with large-scale emulsification of waxes are well-known to the manufacturer. Colloidal particle size is usually critical and often irreversible after the batch has progressed beyond a given stage of emulsion process. . . . Also the state of the kettle mass at a given process interval, while frequently critical, cannot be determined by many of the usual physical or chemical methods, but must be estimated by an experienced operator from such fugitive properties as color, clarity, foam, viscosity, or how it looks on the end of a stick."

Other shortcomings of the two techniques can be listed as follows: 1. High temperature and long waiting required for melting high-melting waxes. 2. Excessive amounts of fatty acids and alkalis are required to produce optimum particle size, especially in the "wax-to-water" method. This is due to the relatively short saponification contact time necessitated by the high-melting nature of the wax melt. 3. Saponification reactions often are not completed during the production cycle and may continue after the product has been packaged and shipped. This is particularly true of formulations incorporating borax and similar fixed alkaline salts. Such post-process reactions may result in jelling, thickening, loss of dry-bright gloss due to particle agglomeration, and reactivity with leveling and anti-slip additives.

New Process Emerges

New and better ways were sought to utilize the desirable properties of the synthetic waxes in the manufacture of self polishing wax emulsions. This search resulted in a vastly simplified emulsification technique. We propose to refer to this as the "direct wax saponification method." As of now, we have studied this technique in connection with converted Fischer-Tropsch waxes, also combinations of these with other high- and low-melting waxes and polyethylene.

Although the direct wax saponification technique is new in the production of dry-bright floor waxes, it goes back to the age-old art of saponifying fats and oils. We find descriptions of that art in such recipe books as that by Braun (2) published in 1907 or the one by Andes (3) printed in 1920. When wax emulsions were first used for leather finishing in the 1920's, they were made by a form of direct saponification. Why, then, was it necessary to "re-discover" this technique after 30 years or so? Possibly because carnauba, for many years the main-stay of the dry-bright polish industry, was assumed not to yield sufficiently small particles if processed by direct saponification.

The technique was re-discovered for the industry as a whole one day, later in 1957, when a potential customer called our laboratory to ask if our waxes could be dispersed directly in boiling alkali. We doubted it, because our Fischer-Tropsch waxes have melting points five to 10 degrees centigrade above the boiling point of water. Nevertheless, curiosity won out, and we spent a few hours with our friend. He told us then that he had never known of any other way to make dry-bright waxes, and, anyway, his kettles could not be heated to the high temperatures required to melt our products. The hours spent in our friend's laboratory proved to us that, indeed, our waxes could be dispersed by direct saponification. We have since learnt that this process yields far more satisfactory and reliable results than any of the other known procedures. In the months which followed, our laboratory staff studied the process further under a variety of operating conditions and supervised successful kettle batches of as much as 3600 gallons, thus contributing to the growing success of the Fischer-Tropsch type hard waxes.

Direct Wax Saponification

The direct saponification procedure can be summarized as follows: All the waxes in their unmelted form, the fatty acids called for by the formula, and the alkalis are charged into the kettle together with a quantity of water amount-

Table I. Fine Particle Size Wax Emulsion

	grams
"Duroxon J-324"*	55
"Durez 219"**	25
Fully refined paraffin 133/5 AMP	20
Potassium hydroxide flake	0.5
Borax cryst. 10 mol.	1.0
Triethanolamine	1.0
Ammonia 28 per cent (dissolved in the TEA)	3.0
Water to make a total of (15% solids	683.0 (cc)

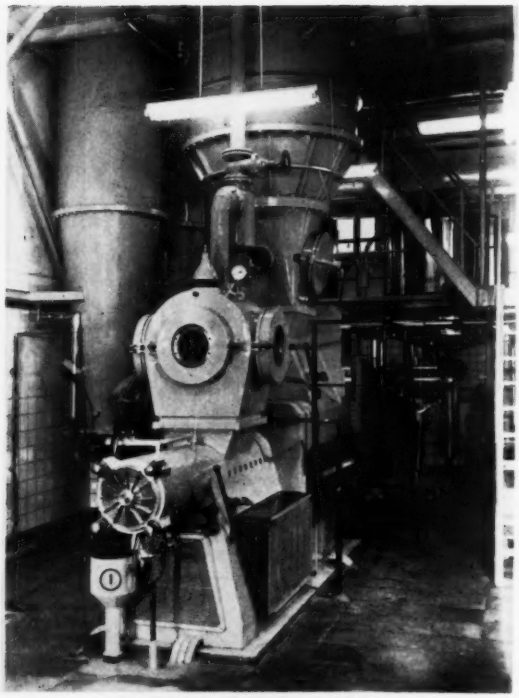
Wax-soluble resins such as "Durez 219" must be pre-blended with at least part of the "Duroxon" wax before they can be used in the direct saponification or any other wax emulsification system.
*Dura Commodities Corp., New York.
**Durez Plastics Division, North Tonawanda, N. Y.

Table II. Floor Polish Parent Wax Emulsion Formula PWM-1555

	grams
"Duroxon J-324"*	50
Carnauba wax, pure, yellow or No. 3, N.C.	50
Oleic acid, pale	12
Borax, cryst., 10 mol.	2.5
Potassium hydroxide flake	0.3
Morpholine	12
Water to make a total of (15% solids)	755 (cc)

*Dura Commodities Corp., New York.

G. MAZZONI, S. P. A.



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For cooling, drying and extruding all kinds of soaps up to 82% T.F.A. Capacities range from 150 to 6000 Kgs. per hour.

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They are economical: Their requirements for steam, water and power are extremely low! Only one operator is required! No scrap soap is produced!

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They are extremely flexible: The same plant also can manufacture pure or built household soaps from 35 up to 82% T.F.A., flake and powder dried base, etc.

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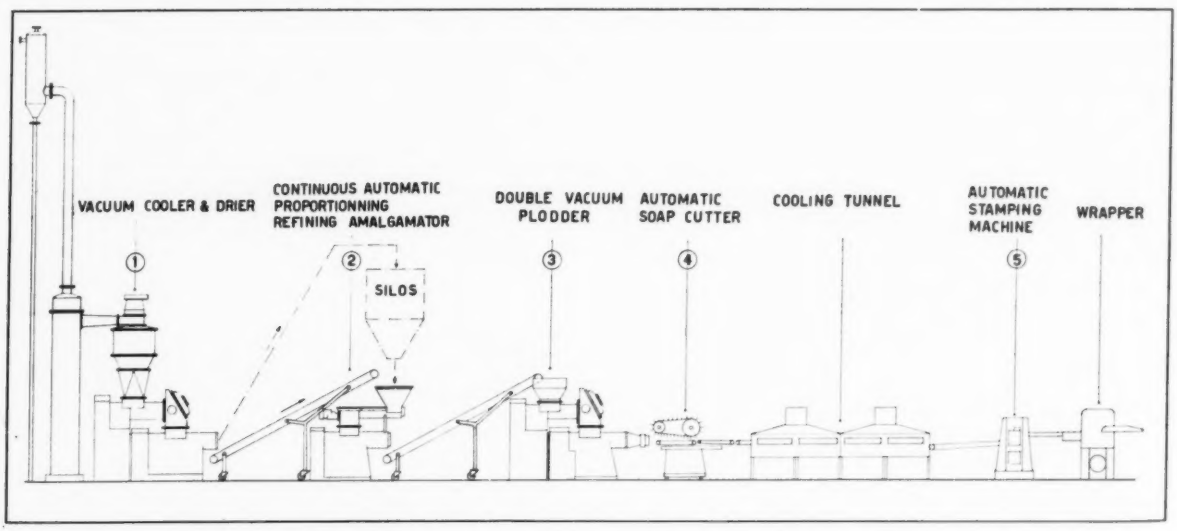

Layout of our continuous toilet soap line. Fully continuous or batch processing possible using chips silos. Our line automatically produces fully refined, first class toilet soap with no roll mills. The individual machines that are employed in the above sketch appear on this and the facing page. A complete line or individual units are available with production capacities of 250 to 1500 Kgs. per hour.

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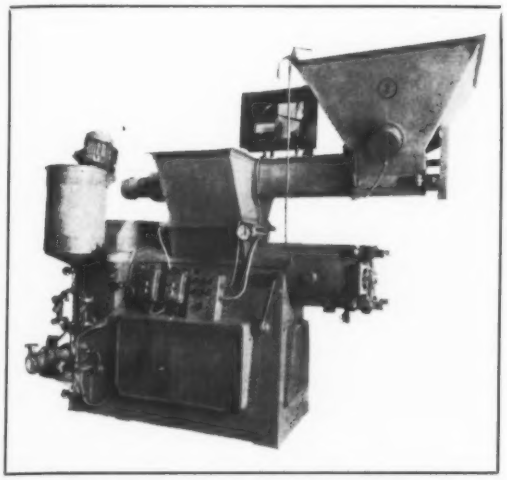
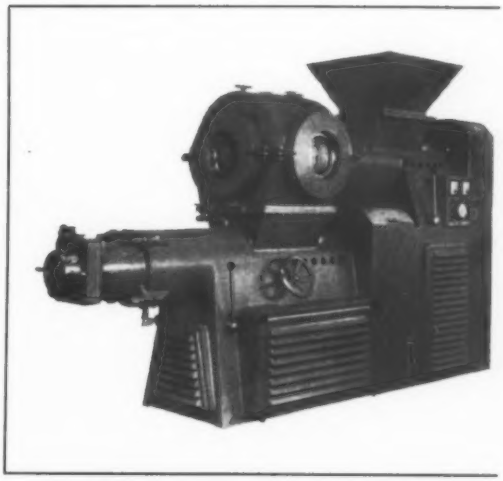
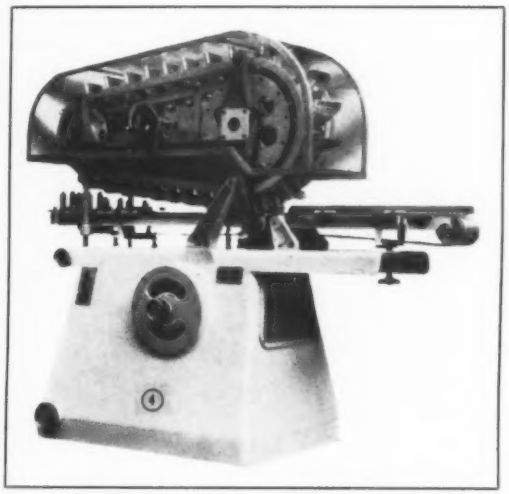


CONTINUOUS AUTOMATIC PROPORTIONING REFINING AMALGAMATOR

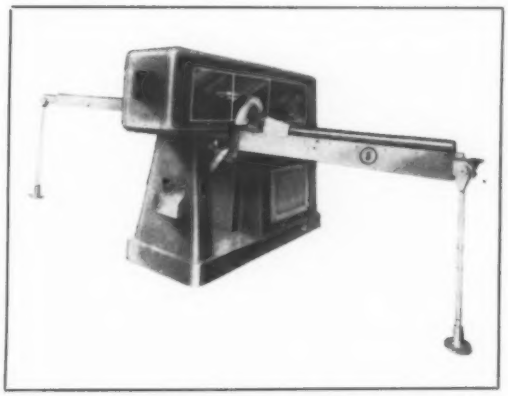


DUPLEX — DOUBLE VACUUM PLODDER
Refiner and Extruder

Units shown on this page are available individually. They appear as numbered in production line diagram on facing page.



AUTOMATIC SOAP CUTTER "TV"
Adjustable cutting length by means of handwheel



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Type "St-S" stamping speed up to 125 per minute.
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Table III. Floor Polish Parent Wax Emulsion Formula PWM-1740

	grams
"Duroxon J-324"*	80
Emulsifiable polyethylene (AC-629"** or "Epolene" E***)	17
Nonionic emulsifier (f.i. "Emulphor ON-870"†)	3.0
Oleic acid, pale	5.0
Morpholine	14.5
Water to make a total of (20% solids)	525 (cc)

*Dura Commodities Corp., New York.
**Semet-Solvay Petrochemical Division, New York.
***Eastman Chemical Products, Inc., Kingsport, Tenn.
†Antara Chemicals, Sales Division of General Aniline & Film Corp., New York.

Table IV. Floor Polish Parent Wax Emulsion Formula PWM-1832

	grams
"Duroxon J-324"*	60
"Durez 219"** (preblend with at least equal quantity of "Duroxon")	20
Emulsifiable polyethylene (see Table III)	20
"Igepal CO-990"***	3
Oleic acid, pale	5
Sodium hydroxide, flake	0.5
Morpholine	10
Water to make a total of (15% solids)	707 (cc)

*Dura Commodities Corp., New York.
**Durez Plastics Division, North Tonawanda, N. Y.
***Antara Chemicals, Sales Division of General Aniline & Film Corp., New York.

ing to 40 to 100 per cent of the weight of the solids. The kettle is then heated to boiling. Agitation need only be applied to the extent necessary to insure good heat distribution. The resulting boiling alkali solution disperses the fatty acids and unmelted wax solids. The resulting oil-in-water dispersion gradually inverts to a water-in-oil system. Once the oil phase is on the outside, it dissolves the remaining undispersed solids rather quickly. The mass now becomes smooth, uniform and honey-like in appearance. These changes take place within a few minutes (usually seven to 15) after the boiling point has been reached. Heating can be continued several minutes longer to insure complete saponification and essential termination of the reaction. Now, a small quantity of boiling, slightly alkalized water (about 20 per cent based on the weight of the solids) is added to the mass and normal agitation started. After three to five minutes the mass becomes crystal clear. This state of clarity must be firmly established before the procedure may be continued.

The speed of the agitator is then increased and boiling water, equal to 150 to 200 per cent of the weight of the solids, is added in an uninterrupted steady stream. This is sufficient for inversion to the oil-in-water phase. The remainder of the water stipulated in the formula is now added at tap-temperature, up to full volume. Forced cooling of the finished emulsion is desirable but not essential. When full volume is reached the batch is cooled down to 125 to 140°F, a temperature at which it should be stable.

Direct saponification can be used with any emulsifiable wax or wax-like solid having a melting point of up to about 120°C and containing polar groups. The process is suitable also for emulsifiable polyethylene, non-polar waxes and unoxidized polyethylene insofar as these materials are dissolved in the emulsifiable waxes and are thus carried into the emulsion. This happens at the end of saponification when the emulsion has reverted to water-in-oil. Where wax-soluble resins, such as the terpene-phenolics are used, they should be pre-blended in a portion of the emulsifiable wax before being added to the batch in the kettle.

Table I shows a formula which will yield, by direct saponification, a stable, translucent emulsion of bluish fluorescent appearance. This is not a floor-wax formulation, but it shows the potential of this process in terms of film improvement and economy. Despite a high content of ordinary paraffin wax the formula does not incorporate additional fatty acid. Emulsification is accomplished with a 5.5 per cent (based on the weight of wax solids) total alkali content. Different wax, polyethylene and resin combinations, all practical from the floor polish manufacturer's point of view, are shown in tables II, III, and IV. In each instance the fatty acid content has been kept lower than is usual for conventional emulsification processes.

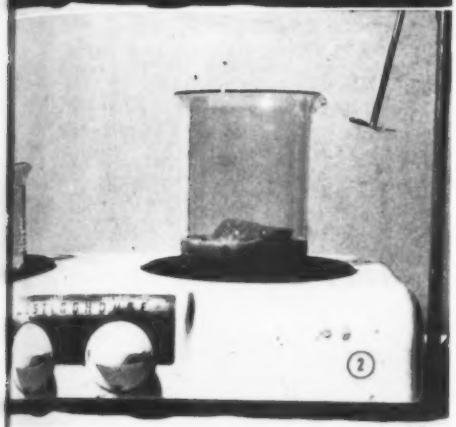
Table V gives the formula used and a schematic outline of the procedure depicted in Figures 1 through 11. Morpholine is added in three stages, because of its volatility. Actually its evaporation rate approximates that of water. Only about 10 to 12 per cent of the total morpholine are lost in this process which is believed to compare favorably with the loss sustained in other procedures.

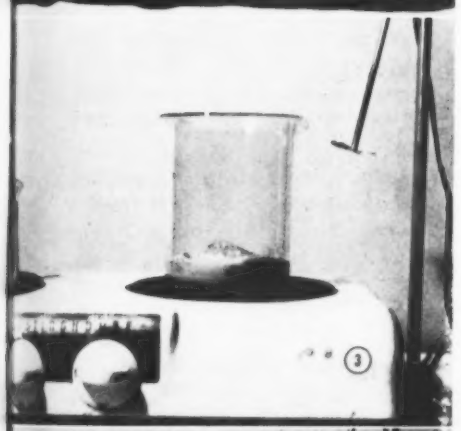
Characteristics of the wax emulsion should be checked against those required in the finished floor products. The two simplest tests are visual, one for film transparency and one for gloss. Film transparency can be evaluated by means of a black glass plate and gloss by

Table V. Direct Wax Saponification Procedure, Parent Emulsion SP-1645*

Ingredients	Initial charge grams	1st addition grams	2nd addition grams	final addition grams
"Duroxon J-324"	97			
Nonionic emulsifier	3			
Oleic acid	3			
Morpholine	5	5	4.5	—
Water	60	20	180	to total 515

*Copyright 1958, Dura Commodities Corp.
First and second additions of water at 212°F, third at tap temperature.





Picture sequence tells story of direct wax saponification on laboratory scale.

1. Large beaker holds initial charge of 60 grams of water and 103 grams of solids. 300 grams of water are being heated to 212° F. in smaller beaker at left.

2 and 3. Initial charge is boiled 10 to 15 minutes without agitation. Boiling alkali disperses wax, forming oil-in-water emulsion at first.

4. Beginning of inversion to water-in-oil phase. Some undispersed wax still remains.

5 and 6. Oil phase now is on the outside and dissolves remaining undispersed wax. Mass turns smooth, uniform, and honey-like in appearance.

7. Normal agitation begins.

8. Further clearing of the batch upon addition of another five grams of morpholine and 20 grams of boiling water (based on 103 grams solids.)

9. Three to four minutes later contents of the beaker are crystal-clear.

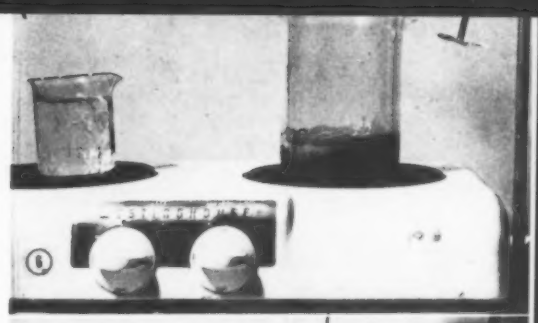
10. After addition of 180 grams of boiling water and remaining morpholine in a steady stream with strong agitation, phase inversion to oil-in-water has been accomplished.

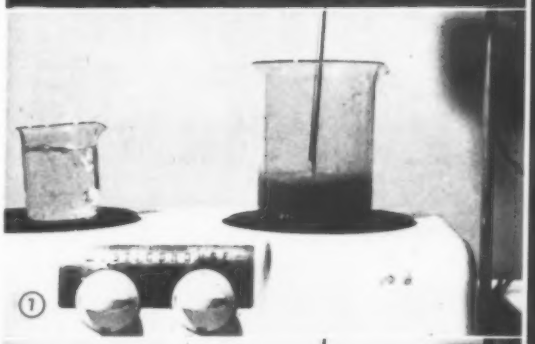
11. Brought to full volume with water, added at tap temperature in a steady stream and with strong agitation, emulsion now appears translucent.

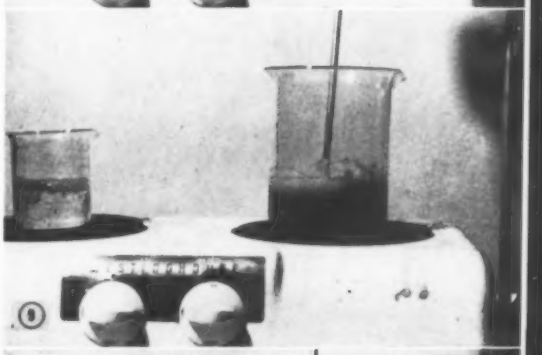
means of a test sheet. The test sheet will also tell something about water repellency, film discoloration, leveling, tackiness and buffability. For initial screening purposes the test sheet is quite satisfactory although it is far from being a surface giving the ultimate answers.

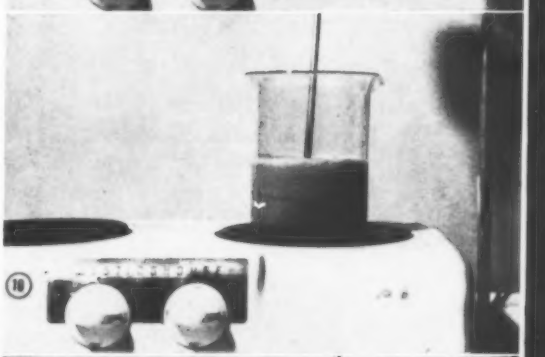
Prior to combining the emulsion with resin solutions and polymers the pH of all components must be tested and adjusted. Freeze-thaw stability and film transparency may be impaired by a low pH. An excessively high pH may cause re-emulsification or film lifting upon application of a second coat. Generally, the pH of emulsions made with Fischer-Tropsch waxes should be adjusted to 8.7 to nine for best results. The adjustment should be made in each of the components separately, before they are combined. Usually, and especially in the case of synthetic alkali-soluble resins, the pH has to be adjusted upward. For this purpose ammonia is most commonly recommended.

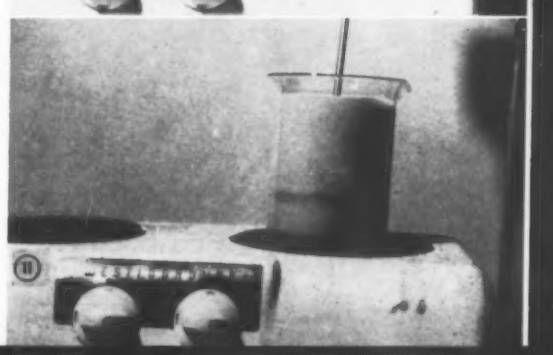
(*Turn to Page* 152)











Summary

A new procedure called "direct wax saponification method" has been described and demonstrated. The method lends itself to the efficient, reliable and fool-proof production of bright-drying emulsions. The direct advantages of the new technique can be itemized as follows:

1. No change of existing equipment is required.
2. Efficient and economical use of alkalis is made to produce the emulsifying soap.
3. Total soap content can be cut to surprisingly low levels without sacrifice of fine particle size.
4. Danger of post-process reaction such as jelling and thickening is minimized. Oven stability tests appear to confirm this.
5. Danger of human error during the process is minimized.
6. The process is self-regulatory, requiring no temperature control.
7. Processing time is considerably shortened because dispersion of unmelted wax proceeds faster than melting.
8. Kettle temperature requirements are limited to the amount of heat needed for bringing water to boiling.

Acknowledgements

The contributions made by individuals in the preparation of this paper are too numerous to list without incurring the risk of omitting one or the other person's name. To all of them, I wish to express my thanks and sincere appreciation. The greatest bouquet is due the gentleman who demonstrated to the author that the method of direct saponification works for waxes and thus inspired him to go into the matter presented in this paper. This friend asked to remain unnamed which I sincerely regret.

Thanks also to Mr. Robert Koski of Candy & Co., and to your program chairman, Mr. Earl Brenn of Huntington Laboratories, Inc. for their advance reading of this paper and their helpful suggestions.

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1. Pollnow, Frank J. Jr., Proceedings, 41st Annual Meeting of CSMA, page 191, December 1954.
2. Braun, Dr. Karl, Die Fette und Oele, vol. II: Die Seifenfabrikation, die Seifenanalyse und die Kerzenfabrikation, Leipzig 1907.
3. Andes, Louis E., Praktisches Rezeptbuch fuer die gesammte Fett-, Oel-, Seifen- und Schmiermittel-Industrie, Vienna and Leipzig, 1920.

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Phosphoric Safety Data

Essential information on the properties of phosphoric acid and on its safe handling is contained in a new 14 page safety data sheet (SD-70) available from the Manufacturing Chemists' Association,

1625 Eye Street, Washington 6, D. C. at 30 cents a copy.

Synthetic detergents, metal cleaning compounds, and water conditioners are just a few of the many specialty products in the manufacture of which phosphatic derivatives find extensive use.

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Antara Revises Catalog

An expanded and revised chemicals catalog has been published by Antara Chemicals, a sales division of General Aniline & Film Corp., 435 Hudson St., New York.

The 64-page booklet is divided into separate sections devoted to specialties, surfactants, acetylene chemicals, glycols, etc. In the specialties section the composition, properties, and uses are described for "Antarate 9183," an oil soluble emulsifier for pesticides; "Bional A-50," a refined quaternary ammonium bactericide; and "Biopal VRO-20," a concentrated iodophor for compounding detergent-sanitizers, sanitizing and germicidal rinses and cleaners. Also listed are "Blancophor CN-76," an optical-whitening agent for incorporation into built soaps, built synthetic detergents, and powdered perborate bleach formulations, and "Blancophor DS-86," an optical whitener for use in heavy duty laundering detergents. A line of "Cheelox" chelating and sequestering agents is included in the long list of specialties.

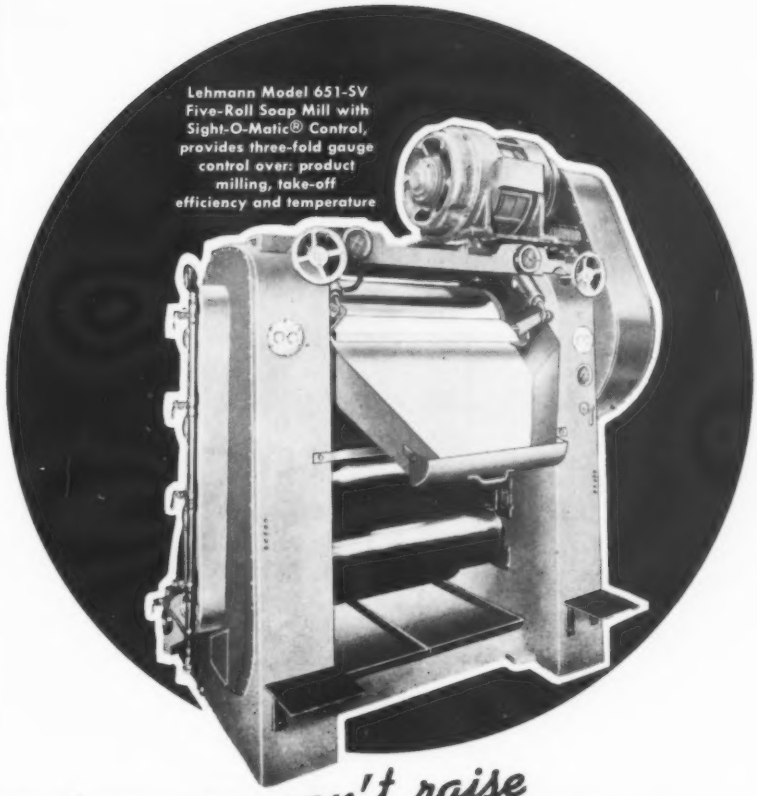
Under the acetylene chemicals section, the Antarate line of polyvinylpyrrolidone (PVP) appears, as well as PVP-Iodine (10), said to be an effective fungicide, viricide, and bactericide.

—★—

White King V.P. Retires

Edward Douglass, Jr., retired recently from the White King Soap Co., Los Angeles, after 43 years with the firm.

During his career Mr. Douglass served as vice president of California Rendering, and earlier acted as president of the Los Angeles Soap Co. He received a special award at a testimonial dinner marking his retirement.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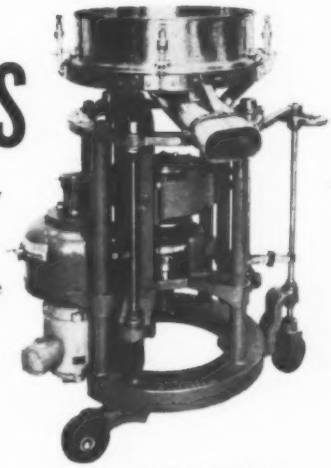

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NEW Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication. Complete copies may be obtained by writing to the publisher of this magazine: — MacNair-Dorland Co., 254 W. 31st Street, New York 1, N. Y., and remitting 50c for each copy desired. For orders received from outside of the United States the cost will be $1.00 per copy.

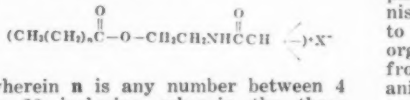
No. 2,855,367. Detergent Composition, patented by Charles Edward Buck, North Arlington, N. J., assignor to Colgate-Palmolive Co., New York. A detergent composition is claimed characterized by the fact that an approximately ¼% solution of said composition in either hard or soft water at about 120° F. foams to a height of at least ½ but not greater than 5 inches during the washing of household linens of average soil load in a household horizontal tumbler type automatic washing machine, said detergent composition consisting essentially of about 2 to 90% by weight of a mixture of a water soluble nonionic polyethylene oxide detergent condensate of a higher aliphatic alcohol containing about 8 to 22 carbon atoms, said condensate containing about 6 to 30 ethylene oxide radicals per molecule, a water soluble alkyl benzene sulfonate detergent salt having an alkyl group containing about 8 to 20 carbon atoms, and a higher fatty alcohol containing about 10 to 20 carbon atoms, and about 10 to 98% of inorganic water soluble builder salts.

A detergent composition as set forth in claim 10 which contains pentasodium tripolyphosphate as an inorganic water soluble builder salt is also covered.

No. 2,859,182. Heavy Duty Liquid Detergent Composition, patented by Frank E. Carroll, Glen Rock, N.J., assignor to Lever Brothers Co., New York. Revealed is a homogeneous heavy duty liquid detergent composition consisting essentially of an aqueous solution of from about 7% to about 16% of a potassium alkylaryl sulfonate having the general formula

where R is an alkyl group containing from 1 to 15 carbon atoms, at least one R having 8 to 15 carbon atoms, and x is a number from 1 to 5; from about 4% to about 12% total of alkali metal arylsulfonate selected from the group consisting of toluene sulfonate, tetralin sulfonate, ethylbenzene sulfonate, isopropylbenzene sulfonate, orthoxylene sulfonate, meta-xylene sulfonate, a mixture of 80% toluene sulfonate and 20% ethyl benzene sulfonate, a mixture of 61% ortho-xylene sulfonate and 39% isopropylbenzene sulfonate, a mixture of 15% ortho-xylene sulfonate, 70% meta-xylene sulfonate, and 15% paraxylene sulfonate, a mixture of 47% toluene sulfonate plus 53% of a mixture of 15% ortho-xylene sulfonate, 70% meta-xylene sulfonate, and 15% para-xylene sulfonate, a mixture of 22% ortho-xylene sulfonate, 53% meta-xylene sulfonate, 5% paraxylene sulfonate, 18% ethylbenzene sulfonate, and 2% toluene sulfonate, and a mixture of from about 1% to about 10% toluene sulfonate plus from about 99% to about 90% of a mixture of 22% ortho-xylene sulfonate, 53% meta-xylene sulfonate, 5% paraxylene sulfonate, 18% ethylbenzene sulfonate, and 2% toluene sulfonate; from about 27% to about 10% of a potassium polyphosphate selected from a group consisting of tetrapotassium pyrophosphate and pentapotassium tripolyphosphate; and from about 2% to about 15% total of at least one compound selected from the group consisting of lauric isopropanolamide, lauric diethanolamide, coconut monoethanolamide, capric diethanolamide, tallow diethanolamide, the monoethanolamide of a 1:1 mixture of caprylic and capric acids, the condensation product of one mole of lauric monoethanolamide with one mole of ethylene oxide, and the condensation product of one mole of lauric isopropanolamide with one mole of ethylene oxide.

No. 2,860,084. Germicidal Composition Comprising Iodine and a N-Acyl Colamino Formyl Methyl Quaternary Ammonium Salt, patented by Clyde Robert Jackson, Portland, Ore., assignor to Ruson Laboratories, Inc., Portland. The invention consists of a germicidal composition comprising a paste having a pH of less than 9 and containing iodine and a nitrogen compound of the formula



wherein n is any number between 4 to 20 inclusive, wherein the three indicated valence bonds attached to nitrogen are satisfied by members of a heterocyclic ring of which the nitrogen is a member, and wherein X is an anion, in relative proportions of from a trace to 25 parts by weight nitrogen compound.

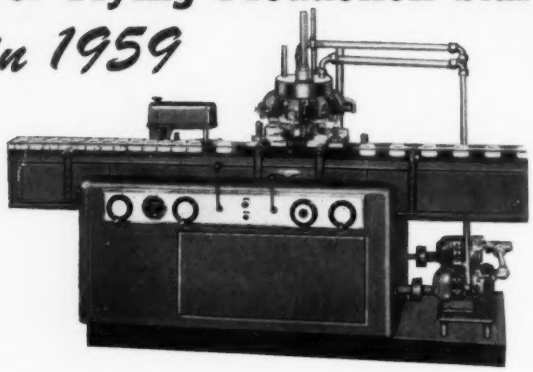
Also covered is a germicidal composition comprising an aqueous solution having a pH of less than 7 and containing from a trace to 25% by weight iodine and from a trace to 50% by weight of N myristoyl colamino formyl methyl pyridinium bromide.

Reissue No. 24,555. Dispensing Cap for Aerosols, patented by Robert H. Abplanalp, Bronxville, N. Y., assignor of one half to John J. Baessler. This patent claims a dispensing cap for aerosol containers having a tubular discharge valve stem comprising: an upstanding peripheral wall across the interior of which extends a valve operating tab attached for a short distance at its periphery to said wall to form a hinge portion therewith and otherwise unattached to the peripheral wall but extending closely adjacent thereto, and a hub projecting from the inner side of said tab and chambered to form a socket for the tubular valve stem of an associated container, said chambered hub extending outwardly through said tab to form an outlet, whereby pressure on the exterior of the tab may be utilized to operate the valve stem and unseat the valve for the discharge of the contents of the container through said outlet.

No. 2,861,956. Liquid Detergent Compositions, patented by Louis Fernandez, St. Louis, Mo., assignor to Monsanto Chemical Co., St. Louis. This patent covers a liquid detergent composition comprising (1) from about 20 to about 80 percent by weight of a water-soluble salt of a sulfated condensation product of about 1 to about 5 mols of ethylene oxide with 1 mol of a C_{10}- to C_{18}-aliphatic alcohol, said salt being selected from the group consisting of the sodium, potassium and triethanolamide salts and said sulfated condensation product; (2) from about 5 to about 30 percent by weight of an aliphatic alcohol containing from 1 to 5 carbon atoms; (3) up to 20 percent by weight of an aliphatic alcohol containing from 12 to 14 carbon atoms; (4) up to 20 percent by weight of lauric acid ethanolamide; and (5) the balance to make 100 percent by weight of water; and at least one of components (3) and (4) is present in an amount of at least about 5 percent by weight.

No. 2,861,954. Polyphosphate Compositions Containing Soap and 2-Mercaptothiazoline, patented by Edgar E. Ruff, Bergenfield, N.J., assignor to Lever Brothers Co., New York. Described is a spray-dried detergent composition consisting essentially of from about 20% to about 50% of an alkali metal tripolyphosphate which in aqueous solution tarnishes German silver, from about 5% to about 15% total of at least one organic non-soap detergent selected from the group consisting of organic anionic non-soap detergents and organic nonionic non-soap detergents, from about 10% to about 20% of an alkali metal carbonate, about 10% of an alkali metal silicate, from about 0.03% to about 0.06% of 2-mercaptothiazoline based on the weight of tripolyphosphate, and from about 1.4% to about 3.0% of a water-soluble alkali metal soap based on the weight of tripolyphosphate, said soap being selected from the group consisting of the alkali metal salts of fatty acids having an acyl group of from 8 to 22 carbon atoms; the amounts of said thiazoline and soap being sufficient to inhibit the tarnishing and the components of the composition being expressed by weight at the time of mixing thereof and prior to spray drying.

For Flying Production Start *in 1959*



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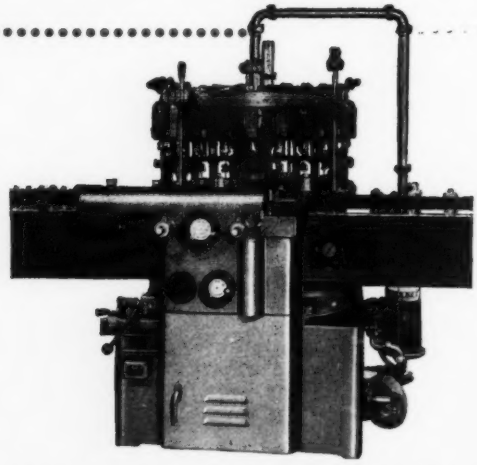

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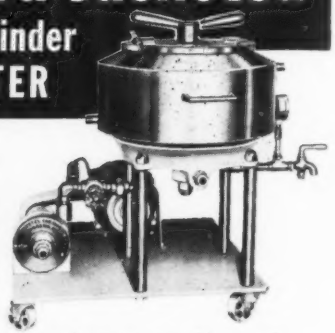

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PRODUCTION Clinic

New Horix Vacuum Filler

A new vacuum filler for liquids, tradenamed "Gravac," and said to employ an entirely new principle of vacuum filling, has been developed by Horix Manufacturing Co., Pittsburgh, Pa. Currently in use in a large food packing plant filling heavy meat sauces, the "Gravac" unit is designed to insure positive and accurate filling while eliminating the overflow or return system which is a feature on conventional vacuum fillers.

Standard gravity filling valves are used on the machine so that it may be used for either gravity or vacuum filling, depending upon the nature of the product.

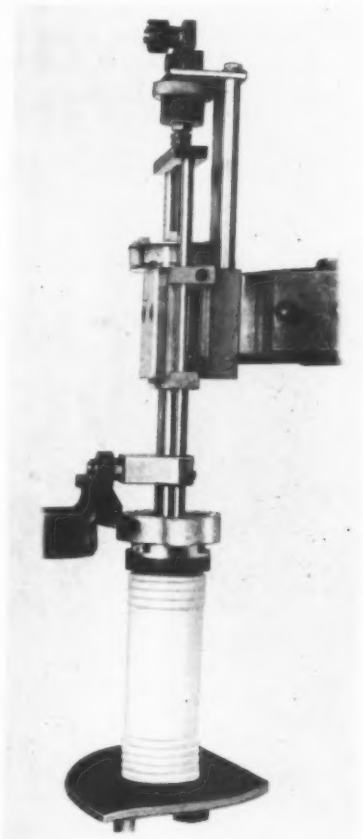
Horix will demonstrate the "Gravac" principle at user's plant, filling his own product, if desired. Complete information about the machine is available from the company, Corliss Station, 2609 Chartiers Ave., Pittsburgh 4, Pa.

—★—

Expands Strainer Line

Spraying Systems, Inc., Bellwood, Ill., has expanded its range of line strainer capacities and choice of materials the company announced recently. Strainers are now supplied in a complete range of threaded pipe connection sizes from ½ inch to four inches, and with flanged connections for three, four and six inch pipe sizes. In addition, all strainers are now available in stainless steel, as well as in brass and cast iron.

Screen areas for each size are "unusually" large, Spraying Systems says. Each strainer can take up to 75 per cent blocking with less than one-half pound pressure drop under normal flow conditions. Dual screen design gives a heavy outside screen to protect against surge and bursting and a fine-mesh inside screen for straining. Screens are supported top and bottom by flange collars to provide seal fit and rigidity.



New Kiefer filling unit featuring novel stem casing

Larger capacity strainers are equipped with top outlet for gauge mounting. Also included are special line strainers for high pressure lines up to 5,000 psi.

More information on the line is available in Bulletin 94, which may be obtained from the company at 3217 Randolph St., Bellwood, Ill.

—★—

New Stem Casing

A new stem casing, which pressure fills to an "exact" level in any type of container without the use of a seal was announced recently by Karl Kiefer Machine Co., Cincinnati. Kiefer has been building filling machines for light and heavy liquids since 1890. The split second cut-off of the flow is accomplished through what the maker terms the "rapid, effective" action of a vacuum liquid level control, when the product reaches the predetermined height in the container. Kiefer says the new casing is "ideal" on plastic bottles which are often deformed by the former sealing compression. The casing can also be used in filling sanitary cans, regular and wide mouth bottles, as well as jars of all types and sizes.

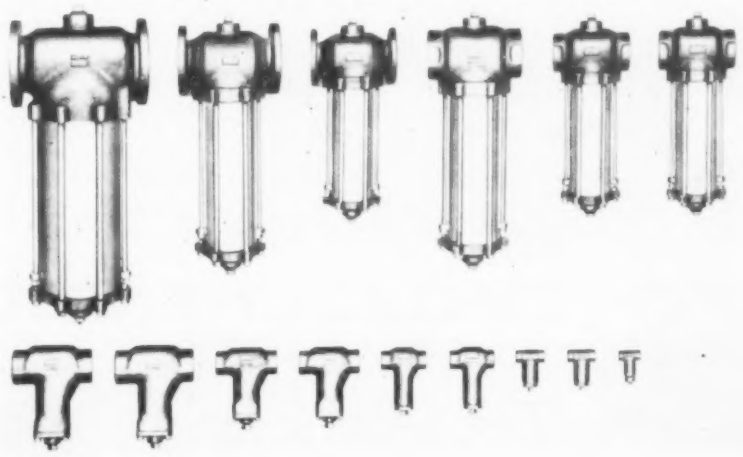
—★—

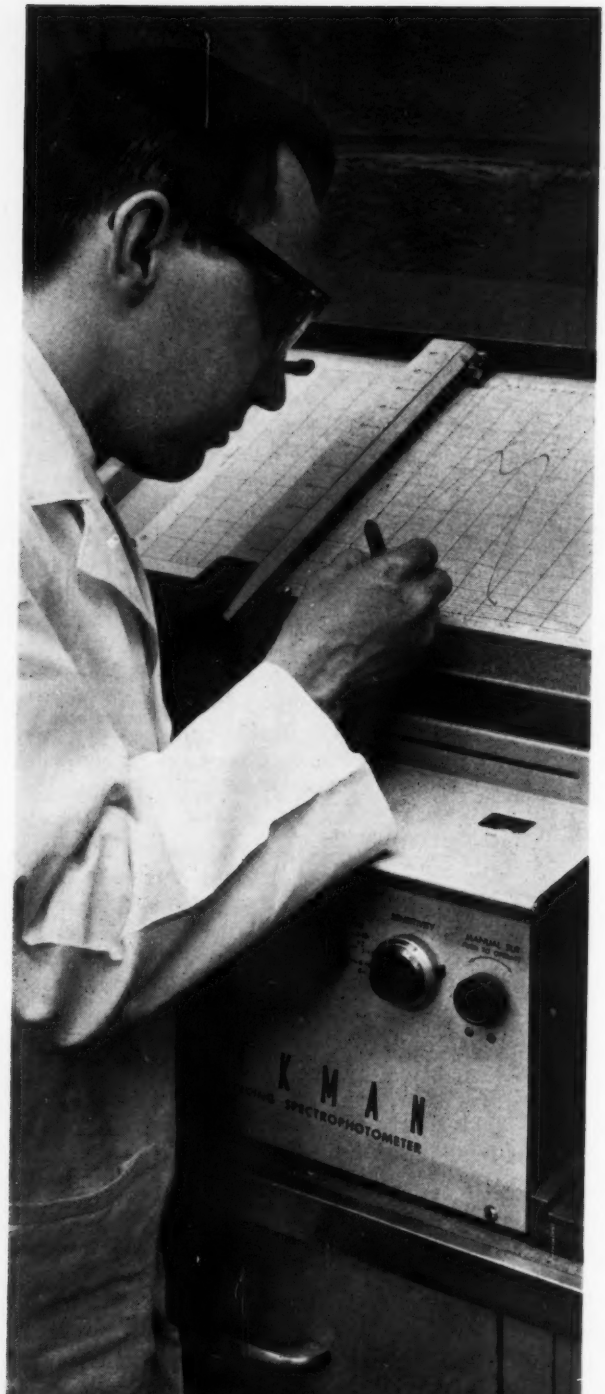
Ungerer Reference List

A 28-page reference list of its line of essential oils, aromatic chemicals, and other specialties, has been published by Ungerer and Co., New York. Designated Reference List No. 59, the catalog features a new cover design prominently displaying the firm's seal.

Copies are available by writing the firm 161 Avenue of the Americas, New York 13.

New, expanded group of line strainers of Spraying Systems, Inc.





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Products and PROCESSES

Waterless Hand Cleaner

A waterless paste hand cleaner reportedly effective against hard-to-remove soil and grime has the following formula:

Methylcellulose 4000 cps.	15.0 gm
Alcohol	5.0 ml
Lanolin	0.5 gm
Glycerine	6.0 ml
Methylparaben	0.2 gm
Perfume	0.4 ml
Water to make	100.0 gm

Used without additional water, the paste is rubbed onto the skin, allowed to dry, then rubbed until dirt rolls off the skin. *Bull. Am. Soc. of Hospital Pharmacists*, April 1958.

—★—

Improved Detergent Lather

Spray-dried organic synthetic detergents gain in foam stability during laundering by the addition of 2-alkyl-4:4-bis (hydroxy-methyl) - oxazolines. Added to the slurry from which the final product is prepared this addition improves general lathering properties and particularly lather persistence of synthetic detergents used at normal concentrations. British patent 800,-291, 1958, Unilever, Ltd., Port Sunlight.

—★—

Improved Fungistat

Fungistatic activity of 2-n-amyloxybenzamide was found to exceed that of many compounds commonly used in this field. However it was found to act rather slowly in work reported in the Nov. 1958 issue of the *Manufacturing Chemist*, p. 480. A series of 2-alkoxy derivatives of benzamide, halogenated benzamides, 3-naphthamide and N-substituted benzamides were prepared and submitted to rather severe *in vitro* tests as potential fungicidal agents. Not only was 2-n-amyloxybenzamide found to be the most active of the derivatives studied, its fungistatic activity was greater than that of undecylenic acid, N-n-butyl-3-phenly-salicylamide, salicylanilide, phenylmercuric acetate, sodium ethylmercurithiosalicylate, and 8-hydroxyquinoline.

—★—

Soap Syndet Detergency

Addition of synthetic detergents to soap serves no useful purpose, according to four Russian authors. Surface activity of mixtures of soap with secondary alkyl sulfates or with alkyl benzene sulfonate is intermediate between the surface activity values of the components of the mixture. Mixtures of soap with primary alkyl sulfates containing 70, 30 and 10 per cent sulfate exhibit surface activities inferior to that of soap. In combinations with primary and secondary sulfates the foaming power is sometimes inferior to that of each of the components.

Detergency of combinations of soap with synthetic detergents is similarly reduced in relation to the detergent power of the component parts. *Maslob-zhirov. Prom*, 1958, 24, No., 23-45; through *Parf. Cos. Savons*, Oct. 1958, p. 419.

—★—

New Perfume Material

A new methyl ionone specialty, trade-named "Methallea," was introduced last month by Dodge & Olcott, Inc., 180 Varick Street, New York 14. The new compound can be substituted for methyl ionone standard and/or alpha-beta mixtures. As much as 15 per cent of the material has been used in perfume compositions with good results according to D&O.

—★—

Continuous Sulfonation

A new continuous sulfonation process is protected by a British patent granted recently to Thomas Hedley Co., Newcastle-on-Tyne. The process is said to carry out sulfonation or sulfation of organic liquids quickly and conveniently. Occurrence of undesirable side reactions is substantially suppressed and the sulfonated product has good color and odor properties. British patent 799,038, 1958.

Effects of Perfumes on Soap Rancidity

RANCIDITY in soap may be accelerated catalytically by certain aromatics. Obviously, careful selection of fragrance materials is of critical importance to the keeping properties of the final product. The most unsuitable combinations for soap perfuming are to be found among the aldehydes. Some of these may cause discoloration by oxidation and polymerization and may accelerate rancidity. Benzaldehyde, for instance, when exposed to air, is rapidly oxidized into benzoic acid. Benzoyl hydrogen peroxide is formed as an intermediate. This is a powerful oxidizing agent and is reduced into benzoic acid with liberation of oxygen.

Cinnamic aldehyde reacts like benzaldehyde. In this case cinnamic acid is formed as the end product, which exhibits all of the characteristics of a non-saturated acid.

Anise aldehyde (p-methoxybenzaldehyde or aubepine) exposed to air forms anisic acid with intermediate formation of peroxide and liberation of oxygen. Anisic acid does not produce odor changes.

The three aldehydes mentioned strongly promote oxidation. Anise aldehyde and benzaldehyde with chlorine cause brown coloration in soap. Benzaldehyde without chlorine and cinnamic aldehyde turn soap pale yellow.

Both citral and citronellal are very sensitive to alkali and have a weak pro-oxidative action. Soaps develop a yellowish color in their presence. Phenylacetaldehyde promotes oxidation only initially. However, it causes brown coloration very rapidly. It is oxidized under the influence of light into the inactive phenylacetic acid. H. J. Henk, *Alchimist* (external house organ of N. V. Sluys Boechout, Belgium) 1958, No. 9-10, pp. 153-4.

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SOAP PLANT *Observer*

By John W. McCutcheon
Consulting Chemist

THIS column comes to you from Sao Paulo, Brazil, where the writer is spending some time. Sao Paulo, slightly larger than Rio de Janeiro, capital of Brazil, is a large modern city with parks, fountains, skyscrapers, and lines of people waiting their turn for buses and taxis. Except for an unusual twist in architectural design and the difference in language, one might think himself in Detroit, Los Angeles, or Chicago.

The architectural difference lies in the use of reinforced concrete as basic structural material. This permits the extensive use of curved surfaces in structural design. Add to this background colored tile and marble and the effect is dramatic.

The heart of Brazil's rapidly expanding soap and detergent industry is in Sao Paulo. A Lever Brothers plant is beautifully situated on a hillside in the outskirts of this city. Established some thirty years ago, it is landscaped with flowers and palm trees. Colgate also has a factory located in Sao Paulo. The largest soap company in Brazil, the Gessy Co. has its manufacturing facilities about fifty miles from here near the city of Campinas. Swift & Co. is another soap maker with a plant in this area. Other soap and detergent plants are, of course, scattered across Brazil, with a number of them in Rio de Janeiro.

Soap and detergent products made in Brazil do not generally meet U.S. standards. The few powdered products on the market appear mostly to have been blown in inferior towers. One reason for these shortcomings is the tremendous expense and difficulty involved in importing new equipment. American manufacturers are

largely unaware of this situation and may well lose this market to European equipment makers.

In the first place, lower labor costs prevailing in Europe give the European exporter a sharp advantage over his American counterpart. Secondly, many European concerns are actively seeking South American business, while at least some American equipment dealers adopt a "take it or leave it" attitude.

For example in one instance an American manufacturer had supplied equipment for a plant in Brazil. A piece of machinery required modification to adapt it to a new process. The American supplier had the modified machine in stock but could not be made to realize that its cost, laid down in Brazil, would be double or triple its American price, f.a.s. New York. This disproportion in price is almost entirely due to the complex import situation based on arbitrary rates of exchange. Since the American firm had made prime sales of the equipment, it would surely have been far-sighted policy to send a man down and have the parts made in Brazil or at least to furnish drawings on a free basis. Local engineers could then have completed the job.

Synthetic detergents are not produced in any quantity in Brazil. One powdered product was introduced about a year ago and appears here and there on the grocers' shelves. Probably the softness of the water acts against widespread acceptance of synthetic detergents. Sao Paulo's water has only a few grains of hardness and this condition is said to prevail in most parts of Brazil.

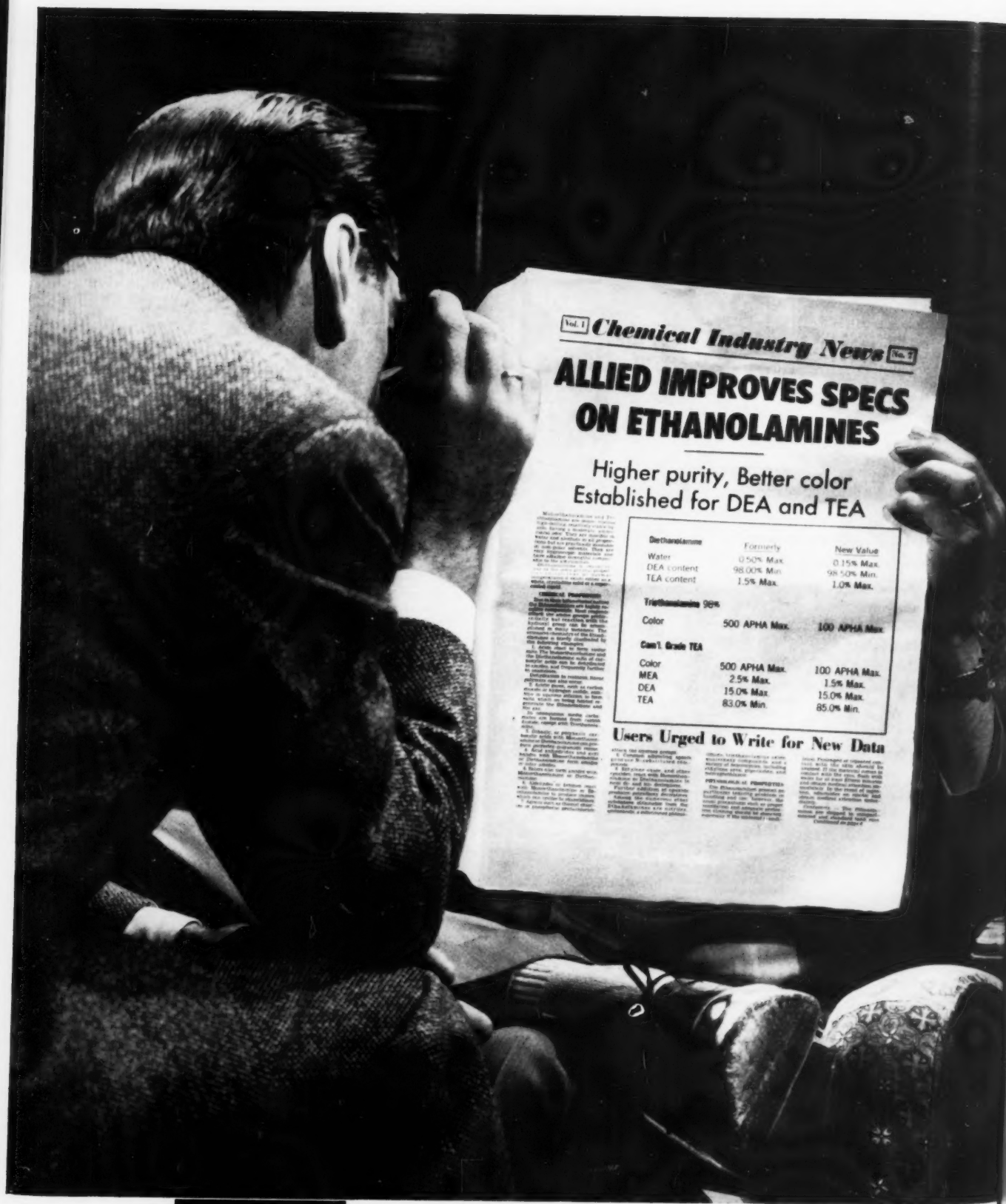
* * *

SPRAY cleaning is fast becoming one of the most important methods used on hard surfaces. This is evidenced by the vast array of equipment offered for this purpose. Originally, spray cleaning simply involved a jet or stream of hot water directed against the surface, but more recently this method has been supplemented by the use of detergents.

The range of systems used varies from permanently installed rotating nozzles to small portable units operated by air, electric power, or steam. Nozzles have various forms and shapes designed for specific jobs. Modern car washing devices are examples of this type of appliance.

Detergent solutions for spray cleaning are usually more concentrated than those formulated for manual use, so as to compensate for the greater volume of water used in the spray process. Similar products have been used for both methods of application. At this point theory seems to deviate from practice. The detergent exhibiting the greatest soil emulsifying power does not always show the greatest cleaning efficiency.

The factors involved have, so far, not been adequately explained. In many instances water, soil, and detergent do form an emulsion which is flushed off by the oncoming stream of water. There are instances, however, where effective cleaning is accomplished without formation of a discernible emulsion. This border area opens



Allied Chemical

NITROGEN DIVISION
Dept. EA 7-27-1, 40 Rector Street, New York 6, N. Y.

intriguing questions, which are important in many industrial cleaning operations.

* * *

A VIEWER for micro films featuring a built-in reproducing device was shown at the National Business Show, held last fall at the New York Coliseum. This piece of equipment is well worth the attention of anyone in industry who has a micro film library or who deals with records in this form.

The reproducing device in this viewer can duplicate within seconds on an eight and a half by eleven inch sheet the exact image shown in the viewer. Since the image can be scaled up or down by a simple turn of a wheel, it is possible to get an enlarged view of a portion of the microfilm page, such as a drawing in one corner for instance, and to reproduce it in black and white, larger than the original.

The equipment costs $629.00 delivered with one lens, $695.00 with two lenses. Add $66.50 for each additional lens desired, if any. The "Thermo-Fax" microfilm reader-printer is manufactured by Minnesota Mining and Manufacturing Co., St. Paul, Minn.

The viewer takes 16 or 35 mm film on reels, in jackets, or mounted on filing cards. The image is located and read on a large screen by location methods generally used on viewers. It permits direct page by page reading of an article. At any time, at the push of a button, the machines goes into the duplicating step which requires a few seconds only.

Use of specialized equipment designed to cut labor costs is evident in all phases of present day industrial life. Automation of the office is just one facet of this trend. High labor costs plus the complications inherent in keeping track of such labor, have encouraged the use of electro-mechanical aids. One might well ask whether this is a good or bad trend. It is a normal trend in a technically progressive era and will only slow down when the complexity of the machine begins to outsmart the operator who has to work it and keep it in repair. Many years will elapse before that happens. In other words automation is a sign of technical progress which should be utilized to its full extent.

—★—

New Du Pont Brochure

"The Story of Technology" is the latest addition to the "This Is Du Pont" series published by E. I. du Pont de Nemours & Co., Wilmington, Del. The 40-page illustrated brochure presents examples demonstrating how human ingenuity translated into technological advance can conquer disease and poverty, how it can raise material and cultural standards.

—★—

New Drum Vent

A new drum vent for end bung installation on 55-gallon steel drums, which is said to prevent drum rupture and loss even when the drum is surrounded by fire, has been introduced by Protectoseal Co., Chicago.

Designed to provide protection when drums are placed in a horizontal position for storage or dispensing, the vent features an automatic valve for interior pressure relief which opens at five pounds p.s.i. and a fusible plug which melts at 135 degrees F. for quick relief in event of fire. Other features include an extra thick gasket seal, pressure-vacuum relief passages, and a perforated metal fire baffle.

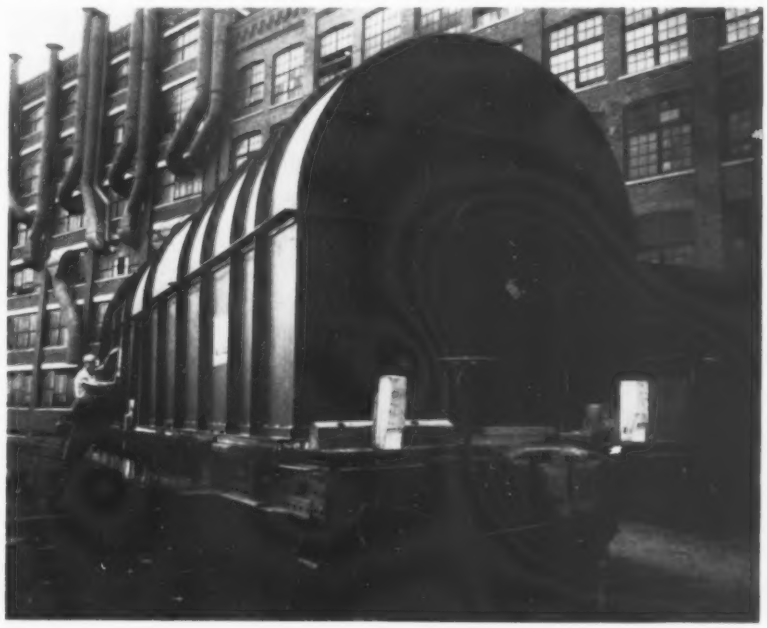
—★—

Drum Head Cutter

A hand operated, portable, and light weight steel drum head cutter is available from Michael A. Schinker Mfg. Co., 6514 S. Western Ave., Chicago 36. Designated model 100, the cutter features the formation of a safety pressed-in flange on the drum which permits complete emptying of the container and leaves no jagged edges or loose metal particles that might mix with the container's contents.

Complete details are available from the manufacturer.

Liquid Blender: First rubber-lined equipment designed for use in the detergent manufacturing industry, steel tank sections shown in yard of B. F. Goodrich Industrial Products Co., Akron, O., are destined for Sinclair Manufacturing Co., Toledo, manufacturer of "Sprite" and "Coral" liquid detergents for household use. When assembled, sections form an elliptical tank 18 feet long, nine feet wide and 16 feet deep. More than 8,000 pounds of crude rubber were needed for the three-sixteenths-inch lining. Liquid detergent ingredients will be blended in the tank. Rubber lining prevents metallic contamination of the solution.



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QUALITY starts with the raw lac imported from India . . . and the rigid controls under which it is processed. For close to four decades, the Mantrose Corporation has held true to its pledge to produce the finest bleached shellac available anywhere . . . with uniformity of product you can depend upon, batch after batch.

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PRODUCTION FACILITIES must also be modern, efficient. Our recently acquired Attleboro plant keeps step with growing demand for Mantrose products . . . insures prompt deliveries for our customers' normal and emergency needs.

But surely the most important test of real service is Integrity. It has earned the confidence of our customers, which made Mantrose growth possible. It is an asset we guard most carefully . . . for only by sincere service can we continue to earn this trust.

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• • •

Fuld Expands Technical Staff

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Shafiroff to Hysan Products

MEN AT WORK: Seymour Baskin, right, president of Time Chemical, Inc., Chicago, manipulates controls of bulldozer as firm breaks ground for new chemical specialties plant. Irving Bell, executive vice-president of Time, looks on. Full details appear on page 169.

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LEADERS IN AROMATIC CHEMICAL RESEARCH

News

Hysan Appoints Shafiroff

Isidore Shafiroff has been appointed director of chemical research and production quality control for Hysan Products Co., Chicago manufacturers of chemical specialties, it was announced last month by Henry J. Brownstein, president.

Isidore Shafiroff

Most recently a senior research chemist with R. M. Hollingshead Corp., Camden, N. J., for the past two years, Mr. Shafiroff had been with Foster D. Snell, Inc., New York, for six years previously. He has written several technical papers on chemical specialties.

—★—

Allrich Harrison Dies

Allrich S. Harrison, 64, president of A. S. Harrison Co., South Norwalk, Conn., died at his home Dec. 18. He had been suffering from a heart ailment.

Mr. Harrison joined the Min-Wax Co. after World War I and was associated with it for 28 years, later becoming vice-president. He went on to found The A. S. Harrison Co., manufacturers of "Preen" floor wax and other wax products for household and institutional use. Mr. Harrison conceived in "Preen" the idea of combining cleaners directly with the waxes thus eliminating the two-stage cleaning and waxing job for floor care. Later other wax products were added to the company's line.

—★—

Purex Names Kord V. P.

Stanley F. Kord has been appointed vice-president of sales for Purex Corp., Ltd., South Gate, Calif., it was announced recently by Alan C. Stoneman, president.

Mr. Kord had served as president of the John Puhl Products division of Purex. John Puhl Products Co., located in Chicago, was purchased recently from its parent organization, Sterling Drug, Inc., New York (see page 238 December *Soap & Chemical Specialties*). In his new post Mr. Kord directs Purex sales division and has moved his headquarters to South Gate while maintaining offices in Chicago.

Also announced was the appointment of Craig Davidson in charge of the advertising department in addition to his duties as head of the product planning division.

The two appointments mark a separation of the company's advertising and sales activities which had been incorporated under a marketing unit headed by John B. McLaughlin, vice-president of marketing, who resigned from the company recently.

Stanley F. Kord

Davies Names Elliott

W. M. Elliott, Jr., has been appointed sales promotional representative for Davies-Young Soap Co., Dayton, O., it was announced in December by Reg H. Gildner, sales manager.

W. M. Elliott, Jr.

Mr. Elliott represents the firm's "Buckeye" products line in the Florida and southern Georgia area.

—★—

Sinclair Moves Operations

Sinclair Manufacturing Co., Toledo, O., producer of laundry bleach and "Sprite" and "Coral" household liquid detergents, took possession Jan. 1 of a building at 6120 Detroit Ave., Toledo, the plant of the Joseph Shaw Co. Sinclair is transferring its manufacturing operations to the 90,000 square foot plant. Of that space, the Shaw firm is leasing back 20,000 square feet for its own operation.

—★—

Drackett Sales Down

Sales of Drackett Co., Cincinnati, decreased for the year ended Sept. 30, 1958 to $19,498,127 from $26,688,573 for the same period last year. Net income and share earnings increased, however, from $1,004,765, or $1.24 per common share, in 1957 to $1,534,375, or $2.02 per common share, in 1958.

TGA Scientific Section Meets

TESTS involving the exposure of guinea pigs to hair sprays were reported on at the meeting of the Toilet Goods Association's Scientific Section, held Dec. 8 at the Waldorf-Astoria Hotel, New York. No reasons were uncovered to suspect hair spray formulations as the cause of pulmonary lesions in a series of experiments reported by Joseph Calandra and John H. Kay, Industrial Bio-Test Laboratories, Northbrook, Ill. The paper was entitled "Effects of Chronic Inhalation of Hair Sprays in Experimental Animals."

Four different groups of guinea pigs were exposed thrice daily in nine by 12 foot chambers to dosages of hair spray which amounted to 200 times normal human use exposure, when calculated in terms of body weight. Each group was exposed to one of four different formulations. Two commercially available fully formulated hair sprays were used, one containing polyvinylpyrrolidone and copolymers, another incorporating shellac as a film-forming ingredient. Two incomplete control combinations were used, one consisting of PVP, ethanol, and a "Freon" propellant; the other of ethanol and propellant alone without polymer. Tests were conducted over a period ranging from 5 to 90 days.

Growth of animals continued at a normal rate and X-ray, hematological and histological examinations showed no macroscopic or microscopic changes in any of the organs or body tissues. However, a high incidence of pneumonia was noted, which was not confined to any one group of test animals but appeared in the guinea pigs exposed to the spray without polymeric ingredients at the same rate as in the other groups. This was tentatively attributed to the chilling of the animals. The full text of this hair spray toxicity study will appear in a forthcoming issue of *Soap and Chemical Specialties.*

Storage stability of sodium lauryl sulfate in solution was the subject of a brief paper by R. R. Read and W. G. Fredell, Warner-Lambert Institute, Morris Plains, N. J., entitled "Alkyl Sulfates: Their Stability to Hydrolysis." Temperature and pH are shown to be the critical factors determining the stability of sodium lauryl sulfate solutions. Provided the temperature is low, alkaline conditions, even down to pH 3, have no adverse effect. High temperatures and high acidity can lead to a 100 per cent breakdown of a product within a few months. The work was carried out with 29 per cent active liquid material.

Buffering at a pH of four is recommended by the authors for improved shelf life. Storage temperature should be kept at reasonable levels.

The above paper will appear in full in a future issue of *Soap and Chemical Specialties.*

"Converting Laboratory Concepts to the Consumer Market," by Robert E. Spinner, Marketscope Research Co., Newark, N. J. was an exposee of reasons why consumer tests are preferable to intramural testing of a product. The speaker defined the purpose of the laboratory test which, he said, is conducted to determine whether or not there is a difference in the test product apparent to the ultimate user after one exposure. This type of approach must be supplemented by extended use tests, which permit the consumer to prepare and use the products many times under normal use conditions.

Superior rigidity and improved retention characteristics were claimed for isotactic propylene ("Profax" brand) in a talk by William O. Bracken, Hercules Powder Co., Wilmington, Del., entitled "Polyolefins as Packaging Materials for Toiletries." Tests were reported with 18 materials such as polyols, fats, oils, surface active agents and other ingredients commonly used in specialties. Weight and volume losses were checked at both room temperature and at 120°F from high density polyethylene and polypropylene four ounce bottles.

Other papers were: "Measurement of Color Impressions," by Gabor B. Levy, Photovolt Corp., New York; "Contribution to the Problem of Possible Skin Irritations by Lipsticks," by Otto Jacobi, Kolmar Research Center, Milwaukee, Wis.; "Antiperspirant Testing: A Comparison of Two Methods", by E. W. Daley, Procter & Gamble Co., Cincinnati.

The second annual C. P. Seaverns Memorial Trophy was awarded to A. L. Weston, BB Chemical Co., at BIMS of Boston's golf-outing at Nashua Country Club, Nashua, N. H., recently. At the presentation of the award were (left to right) Seth U. Shorey, Monsanto Chemical Co.; M. E. Nourse, Howe & French, Inc.; Mr. Weston; Hart Harris, Jr., S. B. Penick & Co.; and D. J. O'Connell, Howe & French, Inc.

Time Builds New Plant

Time Chemical, Inc., Chicago, manufacturers of private label and specification detergents and sanitary supplies for industrial and institutional use, broke ground recently at 3950 S. Karlov Ave. in Chicago's central manufacturing district for the construction of a modern one-story plant. The new building will have 43,000 square feet of floor space, more than twice the size of the company's present quarters at 4344 S. Wolcott Ave., and will house Time's offices, manufacturing, and warehousing facilities for the Chicago area. Partial occupancy is scheduled for March.

Principals of the 11-year old firm are Seymour Baskin, president; Irving Bell, executive vice-president and treasurer; Steve Demaine and Donald Evans, vice-presidents; Jerry Goldman, technical director; and Walter Drost, plant engineer.

The new plant is being erected by the central manufacturing district for Time Chemical on a purchase contract.

—★—

Diversey Buys Deosan

Diversey Corp., Chicago, recently purchased Deosan, Ltd., London, England, for about $800,000 from Vick International, Ltd., a subsidiary of Vick Chemical Co. The acquisition, Diversey's fifth in 1958, is part of the company's world-wide expansion program. Deosan, a manufacturer of dairy cleaning and sanitizing materials, will be owned by Diversey Corp. (United Kingdom), Ltd., a wholly-owned subsidiary of the Chicago company.

—★—

CSMA Vendors Guide

The Chemical Specialties Manufacturers Association, New York, issued the 1959 edition of its annual "Vendors to the Trade" guidebook at the association's 45th annual meeting last month in New York. Published "for the benefit of CSMA members, their customers and potential customers," the 98-page handbook lists companies in their product category and alphabetically. Included are firm addresses, telephone numbers, and the line of products they manufacture.

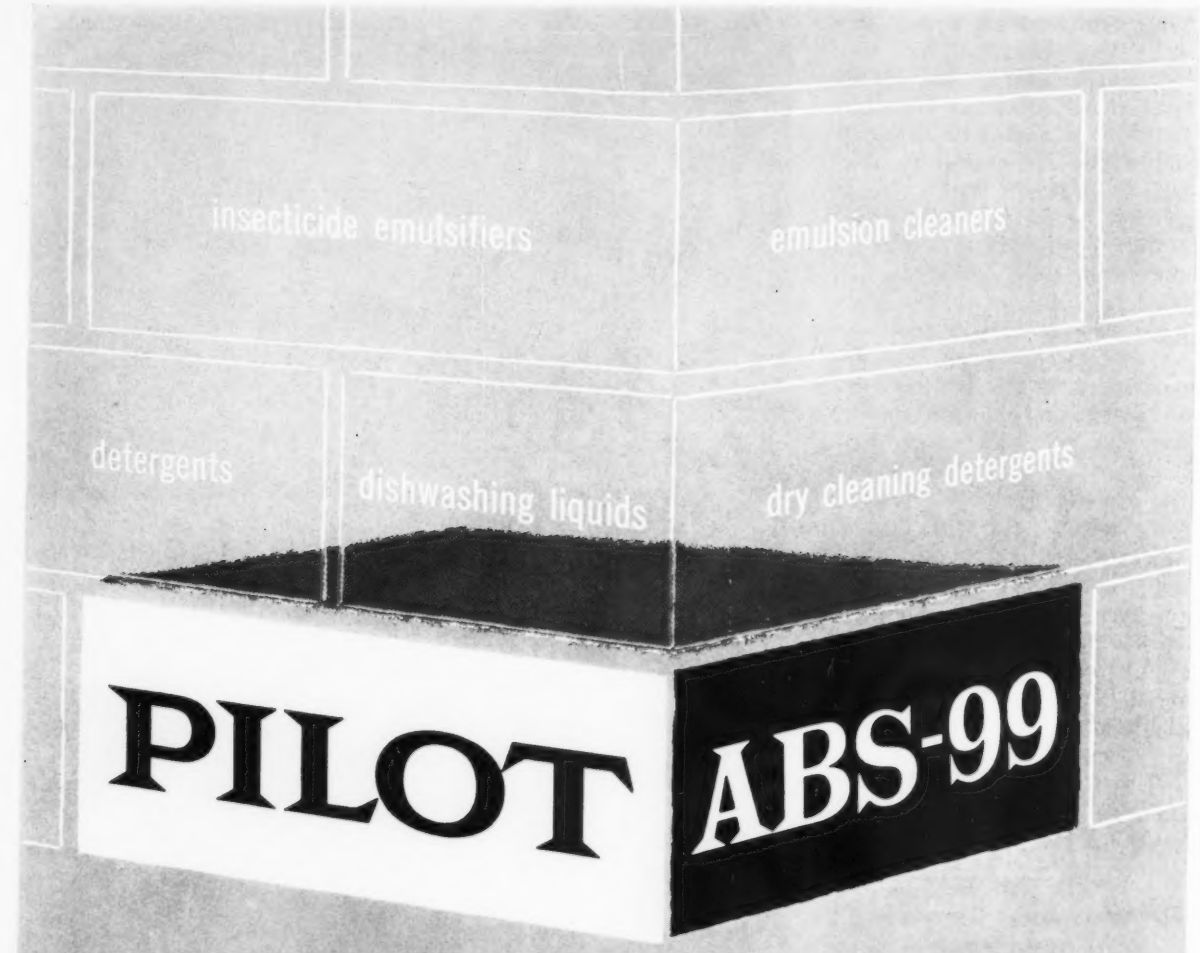
Top: Artist's sketch of new 43,000 square foot chemical specialties plant being built for Time Chemical, Inc., at 3950 S. Karlov. Ave. in the Crawford Development of Chicago's Central Manufacturing District. Shown at ground breaking ceremony in lower photograph are: l. to r. (top) Irving Bell, executive vice-president and Seymour Baskin, president; and, standing, Don Evans, vice-president; Jerry Goldman, technical director; Walter Drost, plant engineer; Irene Brooks, comptroller; Stephen Demaine, vice-president; William J. Carroll, sales engineer and Melvin Malter, counsel.

—★—

Johnson Names Wiley

Frank F. Wiley has been appointed advertising and merchandising manager for S. C. Johnson and Son, Ltd., Brantford, Ontario, it was announced recently by Robert J. Emens, marketing director. Previously product manager for the cereal lines of General Mills, Inc., Toronto, Mr. Wiley has also served as sales promotion and merchandising manager for Vick Chemical Inc., St. Thomas, Canada.

He replaces Mrs. Grace (Wilson) McGuinness who has been appointed administrative assistant to Frank D. Croft, president of the company.



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Soap, Syndet Sales at All-Time High

AN all time high was reported in the dollar value of total soap and synthetic detergents sales during the first nine months of 1958. Dollar value was 3.4 per cent higher than the 1957 figure, but tonnage sales declined 1.7 per cent from the record sales reported in 1957.

In the first three quarters of 1958, 3,091,637,000 pounds of soap and synthetic detergents were reportedly sold, valued at $786,966,000, compared with 3,145,194,000 pounds and $760,881,000 in the corresponding period of 1957. These statistics are collated by the Association of American Soap and Glycerine Producers, Inc., from individual reports of member companies, representing a considerable segment of the industry.

Total tonnage of synthetics sold during the nine months of 1958 amounted to 2,251,510,000 pounds, a 1.2 percent increase over the totals for 1957. This upward trend is almost entirely accounted for by sales of liquid detergents, which climbed 29.1 per cent to 329,584,000 pounds. The most spectacular growth impetus in this group is exhibited by liquid synthetic shampoos tonnage sales of which have soared 71.9 per cent to 9,624,000 pounds. The dollar value of synthetic liquid shampoo sales has risen only 48.9 per cent reflecting a lowering in the price of these products. Sales of liquid soap shampoos, by contrast, have declined 67.6 per cent in tonnage and 79.9 per cent in dollar value in 1958, as compared with 1957. The tonnage sales volume of packaged liquid syndets is up 32.8 per cent, their dollar value up 30.0 per cent, also reflecting slight price reductions in this market.

Turning to soap and soap products, the only growth items on the list are shaving cream, up five per cent in tonnage sales and bar toilet soap, sales of which have inched up another 1.3 per cent. Total soap sales reported for the first three quarters of 1958 amounted to 840,127,000 pounds, down 8.7 per cent from the 1957 total. Almost half of this volume, 412,585,000 pounds, was accounted for by toilet soap. Toilet soap, incidentally, has become more expensive. Tonnage sales, up 1.3 per cent as noted above, are paralleled by a 3.6 per cent increase in dollar value.

Currently, synthetic detergent sales are not reported in such detail as are soap sales. The Soap Association intends to change its system of listing detergent sales and to itemize them in detail, it was learned last month.★★

Sales of Soap and Detergents, First Nine Months of 1958 and 1957

	Pounds		Dollars	
	1958	**1957**	**1958**	**1957**
Soaps, other than liquid	818,679,000	897,286,000	227,777,000	237,001,000
Liquid soaps	2,681,000*	2,913,000*	4,212,000	4,903,000
Total	840,127,000	920,590,000	231,989,000	241,904,000
Bar toilet soap, incl. mechanics	412,585,000	407,150,000	138,366,000	133,560,000
Laundry bars, white	90,457,000	110,655,000	19,119,000	21,732,000
Laundry bars, yellow & other than white	32,562,000	34,520,000	3,768,000	4,054,000
Soap chips & flakes, pkgd.	27,114,000	34,178,000	9,174,000	11,394,000
Soap chips & flakes, bulk	63,387,000	78,858,000	7,524,000	9,420,000
Soap, granulated, sprayed, bulk	52,368,000	62,369,000	6,376,000	7,546,000
Soap, granulated, sprayed, pkgd.	99,886,000	123,942,000	29,097,000	33,726,000
Washing powders, pkgd.	1,195,000	2,002,000	133,000	184,000
Washing powders, bulk	7,950,000	9,932,000	774,000	920,000
Hand pastes, mechanics	3,670,000	3,601,000	433,000	425,000
Hand powders, mechanics	4,261,000	5,386,000	696,000	883,000
Paste and jelly soaps	9,893,000	10,948,000	1,407,000	1,529,000
Shaving soaps	1,797,000	2,426,000	1,154,000	1,696,000
Shaving cream	10,936,000	10,412,000	9,643,000	9,760,000
Liquid soaps, other than pkgd. shampoo	2,658,000*	2,842,000*	4,062,000	4,191,000
Soap shampoo, liquid, pkgd.	23,000*	71,000*	150,000	712,000
Misc. or other soaps	618,000	907,000	113,000	172,000
Detergents, solid	1,921,926,000	1,969,340,000	432,056,000	425,289,000
Detergents, liquid	329,584,000	255,264,000	122,921,000	93,688,000
Total	2,251,510,000	2,224,604,000	554,977,000	518,977,000
Detergents, solid, pkgd., other than shampoo	1,823,852,000	1,809,423,000	413,799,000	401,438,000
Detergents, solid, bulk, other than shampoo	90,019,000	146,858,000	13,029,000	16,158,000
Detergents, liquid, pkgd., other than shampoo	34,841,000*	26,227,000*	104,326,000	80,219,000
Detergents, liquid, bulk, other than shampoo	5,154,000	4,981,000	6,262,000	5,188,000
Detergent shampoos, liquid	1,203,000*	700,000*	12,333,000	8,281,000
Detergent shampoos, solid	8,055,000	13,059,000	5,228,000	7,693,000
Detergent shampoos, total	17,679,000	18,659,000	17,561,000	15,974,000

*Expressed in gallons.

If you have a backlog of "promising" liquid detergent formulas that won't go into clear solution, or that cloud up under temperature changes, Ultra's hydrotropes may be the answer to your problem.

For example, in heavy-duty liquid detergents, where large amounts of phosphates tend to force the active organic ingredient out of solution, Ultra's hydrotropes act as solubilizers or coupling agents, permitting the formulation of clear, stable solutions.

In light-duty liquid detergents, these hydrotropes often are effective cloud-point depressors. In some cases, cloud points can be depressed as much as 15°F.

In spray-dried soaps or detergents, Ultra hydrotropes provide anti-blocking properties that help to assure free-flowing beads.

Write for our bulletin on the properties and applications of ULTRA Hydrotropes SXS and STS. Or, call Ultra's Director of Technical Service for help on your formulation problems.

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ULTRA Chemical WORKS

Fuld Adds to Staff

Erwin Hoess, Jerome J. Grabus, and Emory Clark Rice, Jr., have joined the staff of Fuld Brothers, Inc., Baltimore, it was announced late last month by Melvin Fuld, president.

E. Hoess

J. J. Grabus

E. Rice

D. Denton

Dr. Hoess, an organic chemist, is assisting in Fuld's research and development department working primarily on waxes, polymers, and floor finishes. Previously with the Fairfield research laboratory of Food Machinery and Chemical Corp., Baltimore. He was associated with Englebert and Co., Aachen, Germany, from 1948 to 1955.

An industrial engineer, Mr. Grabus directs and coordinates the activities of the customer-service department. During the past ten years he has been associated with Westinghouse Corp., Bendix-Friez, and Black and Decker Mfg. Co.

Previously with Albert F. Goetze, Inc., Baltimore, Mr. Rice is acting as assistant to the sales manager in the customer-relations department.

Other personnel changes at Fuld include the appointment of Raymond Elban as traffic and credit manager. Formerly in the accounting department, Mr. Elban is succeeded by Donald Denton who had been with House and Kirschke, Baltimore. Mr. Elban fills the vacancy created by the death of Charles Knoblock.

New Industrial Cleaner

A new all purpose industrial cleaner called "Crystal Green Cleaner" has been introduced by the White King division of the Los Angeles Soap Co., Los Angeles. Designed for washing walls, floors, and painted surfaces, the product is green in color, has a pine odor, and is said to assure uniform cleaning action. It dissolves completely in water and does not leave a film or white deposit, according to White King.

—★—

Predicts Super Wax

J. Vernon Steinle, vice-president of research and development of S. C. Johnson & Son, Inc., Racine, Wis., predicted that a super floor wax will be perfected in the not too distant future. Speaking before a meeting of the Milwaukee section of the American Chemical Society, Dr. Steinle said that a wax that will produce a higher gloss and last for several months will probably be developed. He received an award from the society's Milwaukee section for his work in the floor finishes industry.

—★—

Nat'l. Starch Names Roberts

Fred N. Roberts has been appointed to the newly created position of coordinator of market research by National Starch Products, Inc., New York, Donald D. Pascal, president, announced last month.

In his new post Mr. Roberts will coordinate all of National's marketing, sales planning and market research activities. He will serve as staff assistant to James Dillon, senior vice-president in charge of long range planning and growth.

Mr. Roberts was previously associated with M. W. Kellogg Co. in an applications and market research post.

New Babbitt Proposal

Marshall S. Lachner, president, and Keith Dresser, in charge of transit promotion for B. T. Babbitt, Inc., New York, were reported last month as having submitted a formal proposal for a "ride free" promotion to New Orleans Public Service, Inc., for its study. The proposal is said to be similar to the free transit ride in exchange for coupons program which Babbitt has in several large cities.

It was submitted during the course of the company's national sales meeting last month in New Orleans. At the meeting Mr. Lachner stated that business is good in the soap and detergent-related industry. He also announced Babbitt's expansion into the New Orleans area with the appointment of Edward Sley to the newly created post of full-time regional sales manager in that city.

—★—

New Carbide Unit

The first commercial unit for the production of "Polyox" water soluble resins was completed recently at the South Charleston, W. Va., plant of Union Carbide Chemicals Co., New York. The new unit has a capacity of more than a million pounds per year.

Available in truckload quantities in three commercial grades, designated WSR-35, WSR-205, and WSR-301, the resins sell for 85 cents per pound in 20,000 pound lots, 95 cents per pound in 150 to 20,000 pound lots, and $1.05 per pound in less than 150 pound lots. All prices are f.o.b. South Charleston.

In soap and detergent bars, "Polyox" resins are reported to be effective binders and anti-sloughing agents. When used in cosmetics they have thickening and film-forming properties and are said to show good adhesion to the skin. Blends of polyvinyl pyrrolidone with "Polyox" resins may be used to obtain combinations of the desirable properties of both polymers, according to the company.

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Sigelbaum Joins Barco

Moe Sigelbaum has joined Barco Chemicals Division, Inc., Miami, Fla., as general sales manager, it was announced last month by Fred Katz and Phineas Bluerock, owners. The appointment is part of the firm's expansion of its sales force.

With 26 years experience in the sanitary supply business, Mr. Sigelbaum was most recently with Fuld Brothers, Inc., Baltimore, as southern area representative.

—★—

Thomas Bagley Dies

Thomas J. Bagley, 67, executive vice-president of R. M. Hollingshead Corp., Camden, N. J., died suddenly Dec. 6 while playing golf in Haddonfield, N. J. With Hollingshead for more than 50 years, Mr. Bagley is survived by his wife and daughter.

—★—

Specialty Chemical Offered

Experimental quantities of a new chemical, diphenolic acid, tradenamed "DPA," are being offered by S. C. Johnson & Son, Inc., Racine, Wis. According to W. H. Keland, manager of the "DPA" enterprise for Johnson's, the chemical may be used as a raw material and additive for synthetic detergents and emulsifiers, flame retardants and fire extinguishing agents, oxidation-corrosion inhibitors, agricultural chemicals, and other chemical specialties. Marketing of the chemical is part of the company's full scale plan to enter the specialty chemicals field as a basic supplier.

Johnson's is also investigating "DPA's" possibilities for new and improved products in the company's wax line, Mr. Keland stated.

—★—

Two New Dow Directors

Donald K. Ballman, director of sales, and C. B. Branch, manager of the plastics department, have been elected directors of Dow Chemical Co., Midland, Mich. They replace E. O. Barstow and R. L. Curtis who have retired from the board. Dr. Barstow also retired as vice-president but was named to the newly created position of honorary chairman of the board. Mr. Curtis simultaneously retired as general manager of Dow's western division but retains a vice-presidency and continues as senior officer on the west coast. Succeeding him as division general manager is Leland A. Doan, who has been assistant general manager since 1955.

Donald K. Ballman

Leland A. Doan

With Dow since 1935 in various managerial positions in sales and development, Mr. Ballman became assistant general sales manager in 1945, general sales manager in 1949, and director of sales in 1957.

Mr. Branch joined the company in 1937 and has been manager of the plastics department since 1952.

A member of Dow's sales staff since 1941, Mr. Doan was advanced to western sales manager in 1951 and became assistant general manager of the western division in 1955. He is also an assistant secretary of the company.

Francis W. Putnam, left, president, and Philip M. Thivierge, right, assistant to the president, Potter Drug and Chemical Co., Malden, Mass., explain to William Lloyd, representative of the group department of John Hancock Mutual Life Insurance Co., Boston, that the pellets he holds comprise one of the primary stages in the manufacture of soap. Potter, manufacturer of "Cuticura" products, is the oldest group policy holder of the insurance company. A display case exhibit, in foreground, was set-up for a month's showing recently in the John Hancock lobby and was viewed by about 6,000 people daily.

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Step up sulfonation efficiency. "Sulfan" has 99.5% SO_3 available for sulfonation reactions. For many applications, "Sulfan" offers nine times as much usable SO_3 as 100% sulfuric acid . . . over three times as much as 20% oleum. This can mean a considerable saving in operating costs.

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GENERAL CHEMICAL DIVISION
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Wright Joins Lever

Robert A. Wright has been appointed product manager of "Wisk" heavy duty liquid laundry

Robert A. Wright

detergent, it was announced last month by William W. Prout, merchandising manager of the Lever division of Lever Brothers Co., New York. Most recently a senior account executive with Compton Advertising, Inc., New York, Mr. Wright has been associated with Arthur Guinness Son & Co., White Rock Corp., and Sherwin Williams Co.

—★—

Colgate to Buy Wildroot

Colgate-Palmolive Co., New York, and Wildroot Co., Buffalo, N. Y., were reported last month as having reached an agreement in principle whereby Colgate will purchase Wildroot early this year. All outstanding shares of Wildroot stock are expected to be exchanged for Colgate stock upon completion of the Wildroot year-end audit. The number of shares of Colgate stock to be issued in exchange had not been determined at press time but will be based, among other things, according to Colgate, on the value of Wildroot's net assets as of Dec. 31, 1958.

Wildroot employs approximately 250 people at its Buffalo plant and has a Canadian subsidiary at Fort Erie, Ontario. Its "Wildroot Cream Oil Hair Tonic" is said to be the largest selling hair tonic in the United States. In an announcement to their employees, Wildroot management stated that they expect operations to continue as a subsidiary of Colgate.

Established in 1911, Wildroot is headed by Harry J. Lehman, president; Robert E. Schwartz, executive vice-president and general manager; and Albert E. Ritchie, J. Ward Maurer, Harry J. Lehman, Jr., Edward J. Pempsell and Orlo D. Wheaton, vice-presidents.

—★—

Versal Spalding Dies

Versal Spalding, 66, a district manager for the Cellowax Co. of Baltimore, died Dec. 7 in Mount Alto Hospital, Washington, D. C. A resident of Wakefield Forest, outside of Alexandria, Va., Mr. Spalding is survived by his wife, four daughters, and one son. A member of the Rainbow Division in World War I, he was buried in Arlington National Cemetery.

—★—

Washine Names Stern

Arnold Stern has been appointed general sales manager of Washine Chemical Corp., Lodi, N. J., it was announced last month. Previously assistant sales manager, Mr. Stern has been with the firm's sales staff since 1953. In his new post he directs sales for Washine's industrial chemicals and laundries divisions. Mr. Stern had been associated with United Distillers Corp. of America as a chemist and sales representative.

Arnold Stern

4th Generation at Ungerer

Kenneth G. Voorhees, Jr., a great grandson of W. P. Ungerer who founded Ungerer & Co., New

Kenneth G. Voorhees, Jr.

York, in 1893, has joined the firm in a staff position, it was announced last month by his father, Kenneth G. Voorhees, president. The younger Mr. Voorhees is a grandson of F. H. Ungerer. He recently completed service with the armed forces and prior to that had spent time in several manufacturing departments at the company's facilities in Totowa, N. J.

—★—

CIBS Elect Officers

The following officers and directors were elected last month by CIBS (Cosmetic Industry Buyers and Suppliers), New York, to serve in 1959: president, John Duncan, Hazel Atlas Glass Division of Continental Can Co.; first vice-president, Lamson Scovill, Scovill Manufacturing Co.; second vice-president, Robert C. Ring, Hewitt Soap Co.; recording secretary, Ray Rogers, Colgate-Palmolive Co.; corresponding secretary, Allen T. Stewart, Parfait Promotional Packaging Co.; and treasurer, Jay Stephens, Daggett & Ramsdell, Inc., all from New York. Elected as directors of the association were Ed Ellis, Charabot and Co.; Walter Nuckols, Carr-Lowrey Glass Co.; and William L. Jaeger, Park & Tilford Co., all from New York. Mr. Jaeger had been president of the association.

How to keep a floor polish competitive

It costs more today to make a good floor polish. More ingredients, higher material prices.

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In many formulations, by adding more resin you can improve hardness, gloss, translucency. You can use resin to enhance leveling qualities, get higher slip resistance, reduce water spotting. Resin makes the emulsion more stable to improve shelf life, too.

There's only one caution: it takes experience to get results like these. Leading polish manufacturers do it with Durez phenolic resins—the standard of the industry for 20 years.

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Jobber Salesman Honored

Dan Kelleher, a salesman for Easterday Supply Co., San Francisco, received $1,085 in cash last month as first prize in a sales promotion contest that was held over the past year. The copyrighted contest is sponsored by Piatt & Smillie Chemicals, Inc., St. Louis, for janitor supply distributor organizations which sell its "First" detergent.

Certificates are issued for each sale of the product commensurate with the amount of the sale and are redeemable for cash at the end of the promotion period. Mr. Kelleher, who has been with Easterday for four years, sold in excess of $30,000 worth of the product during the 12 months campaign. On hand as the certificates were exchanged for cash were R. L. Friedenthal, vice-president of Easterday, and W. B. Smillie, president of Piatt & Smillie Chemicals, Inc.

Daniel P. Kelleher, center, sales representative for Easterday Supply Co., San Francisco, receives a check for $1,085 from Robert L. Friedenthal, vice-president, Easterday, in exchange for First Fund certificates. W. B. Smillie, president of Piatt & Smillie Chemicals, Inc., St. Louis, looks on.

—★—

Dumas Milner Advertising

A $1-million television advertising campaign was begun last month by Dumas Milner Corp., Jackson, Miss., it was announced by Howard S. Cohoon, president. Three and a half hours of programming over 115 stations of the NTA film network are included in the advertising schedule.

Dumas Milner products featured in the campaign are "Pine-Sol" household detergent, "Perma Starch" plastic laundry starch, "Mystic Foam" and "Instant Mystic Foam" rug and upholstery cleaners, "White Wave" household detergent, and "Pine-Sol" room deodorant.

A nation-wide merchandising effort for the firm's products is being tied in with the television advertising, according to Mr. Cohoon. The television campaign brings the company's annual advertising budget to $2½ million.

Howard S. Cohoon, at right, president of Dumas Milner Corp., Jackson, Miss., signs contracts for the firm's entry into network television advertising for its line of household products. Looking on are Harold Goldman, left, executive vice-president of National Telefilm Associates, Inc., New York, film network, and Frank Morr, vice-president of Gordon Best Advertising Agency, Chicago.

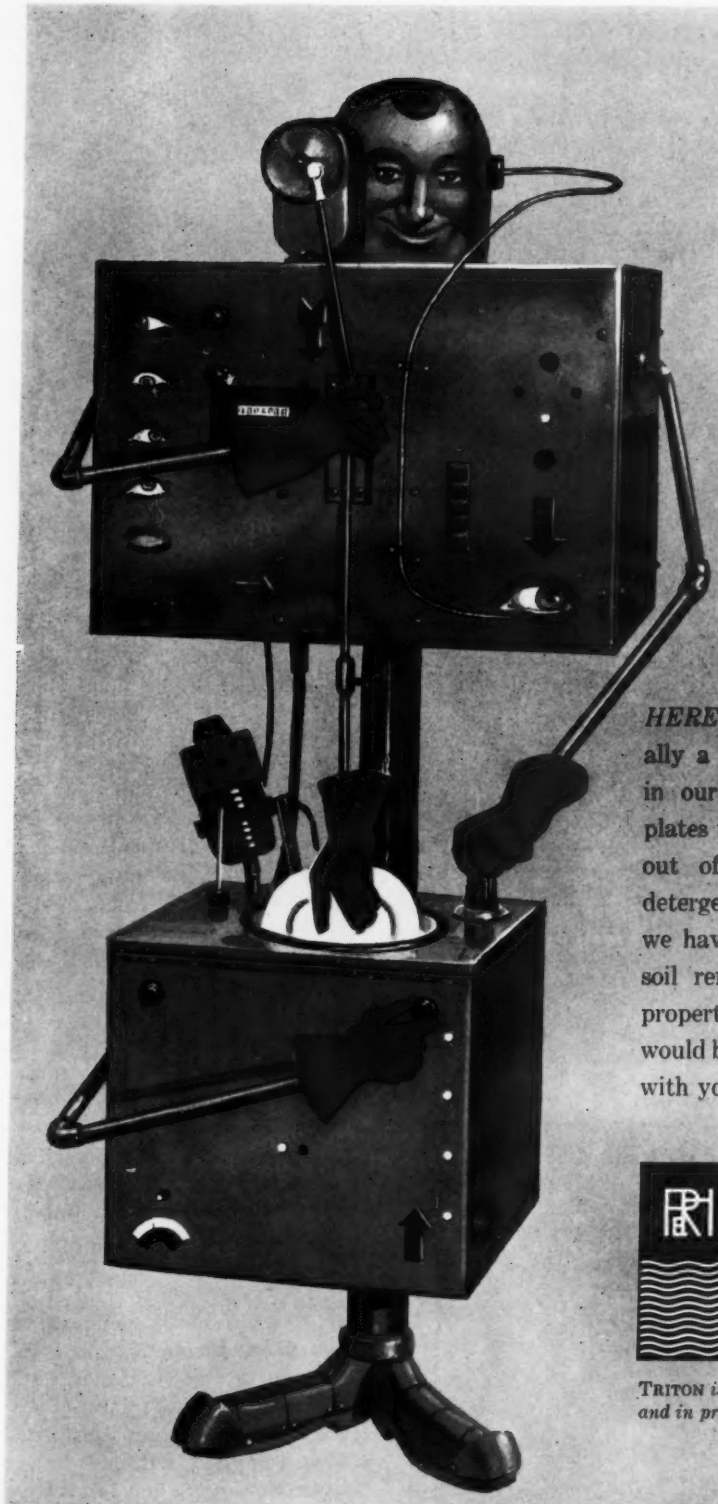
—★—

NSSA Course Offered

A 13-lesson home study course called "Modern Cleaning Methods," has been prepared by the National Sanitary Supply Association, 159 N. Dearborn St., Chicago, for maintenance supervisors, custodians, and other service employees.

Written simply and concisely, the course is designed to help cut maintenance costs, increase safety and efficiency, and improve plant appearance. Each lesson includes a test which the student completes and mails to the association for grading. A certificate is awarded upon successful completion of the course.

Included in the program are such subjects as facts about wax, floor care, sanitation chemistry, personal hygiene, and bacteriology.



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Joins Comfort Industries

Jack Roth, president of Comfort Engineering Industries, Inc., North Miami, Fla., manufacturers of chemical and mechanical air purifiers, has announced the election of Duke Louw as vice president. Mr. Louw, formerly in the metal specialties business in Detroit, succeeds Moyre Levin in charge of the sale of Comfort "Vap-O-Air" de-humidifiers. He has recently been with Wartian Lock Co., previously was vice president of Hercules Aluminum, Inc., manufacturers of metal awnings, both being Detroit organizations. "Vap-O-Air" deodorizers and de-humidifiers are being marketed through the sanitary supply trade.

—★—

Progressive Names Two

H. E. Maurer and Walter Lau have been appointed president and vice-president, respectively, of Progressive Color and Chemical Co., New York, a subsidiary of Intercontinental Chemical Corp., also New York, it was announced last month by M. E. Klee, president of Intercontinental.

Progressive distributes chemicals, intermediates, and other products manufactured by Farbwerke Hoechst AG, Frankfurt-Hoechst, West Germany, and Hoechst Chemical Corp., West Warwick, R. I.

New "Vap-O-Air" air purifier and mildew preventive of Comfort Engineering Industries, Inc., N. Miami, Fla., consists of vented metal wall unit and block. The product is described as an emulsion of waxes, soaps and 73 per cent water and the following active ingredients: naphthalene, paradichlorobenzene, paraformaldehyde, dipentene, nitrobenzene, terpineol and chlorophyll. The chemical block, which is claimed to last for months, is inserted in holder, which is hinged at bottom and opens outward. Unit and block retail for $3.95. Additional blocks are available and retail at $2.95.

About 350 employees of Givaudan-Delawanna, Inc., New York, gathered for the company's annual Christmas party last month. A feature of the affair was the presentation of gold watches to six new members of the firm's group of 72 quarter century employees. New members are Stephen Braun, Theodore Estes, Alphonse T. Fiore, Matthew Sadecki, John Wutsch, and Silvia Boggiano. Shown at the presentation are, left to right, Mr. Braun, Mr. Estes, H. F. Duffy, treasurer, Mr. Fiore, E. R. Durrer, president, Mr. Sadecki, Mr. Wutsch, and Dr. Max Luthy, vice-president — production. Miss Boggiano was not present.

—★—

Hochman Advanced

Jacques O. Hochman has been advanced to director of sales for the mid-west and eastern sections of the United States for Kurly Kate Corp., Chicago, it was announced last month by Edward Matz, Sr., chairman.

With the company for 10 years, Mr. Hochman was previously district sales manager. He makes his headquarters in Valley Stream, New York.

Kurly Kate manufactures metal scouring pads, metal sponges, and filter elements.

—★—

Solvay's Gordon Retires

Lester B. Gordon retired Dec. 31 as vice-president of Solvay Process Division of Allied Chemical Corp., New York, it was announced recently by I. H. Munro, division president.

Joining Solvay as a salesman in 1915, Mr. Gordon was appointed Chicago sales branch manager ten years later and was moved to New York as northern division manager in 1930. Named assistant director of sales in 1937, he was later appointed director of sales and became vice-president in 1951.

McKesson Names Watkins

James K. Watkins, Jr., has been appointed a vice-president of McKesson & Robbins, Inc., New York, according to F. Dean Hildebrandt, vice-president in charge of the company's chemical department. Mr. Watkins was formerly president of Merchants Chemical Co., New York, which was acquired by McKesson on Nov. 1.

CSMA Meeting

(*From Page* 83)

an insecticide, bactericide, and repellant in the oil phase.

Wax-insecticide, and bactericide-insecticide products are available. Many more possibilities are seen in dairies, rendering plants, hospitals, and institutions, for the use of various combination specialties. Labor saving would be the chief appeal of such products.

One of the chief problems arising in the formulation of disinfectant-insecticide or repellent combinations is the fact that disinfectants must be in water phase to disinfect and industrial insecticides are not water soluble (with one exception, "Dipterex" by Chemagro). Correct proportioning and product flexibility are important considerations, economy-wise. Registration difficulties may arise. Much work has to be done to answer these questions satisfactorily, but a good potential market is seen for disinfectant-insecticide

or repellant combinations.

Second Aerosol Session

Roy M. Barnes of E. I. du Pont de Nemours and Co., Wilmington, Del., led off the second session of the Aerosol Division with a talk entitled "Success with Safety." Mr. Barnes pointed up the need for safety by statistics that reveal that as recently as 1956, industrial accidents cost the U. S. economy approximately $11 billion. Aside from personal suffering, costs of accidents in an industrial plant now average about $55 per employee.

As an example of what can be done to cut down such losses he presented details of the Du Pont Safety Program. Based upon education and mass motivation of all employees to make safety a way of life, this program has resulted in a decrease in accident frequency rates from 31.2 in 1916 to .35 in 1957, or from 3,238 injuries and 115 fatilities in 104 million hours exposure in 1916, to 67 injuries and 8 fatalities in 192 million hours exposure in 1957.

"The Chilling Effects of Liquefied Aerosol Propellants, and a Technique for their Determination" was the title of a paper presented by Theodore F. Dunne of General Chemical Division, Allied Chemical Corp., Edgewater, N. J. Because of the rapidly growing interest in cosmetic and pharmaceutical aerosol products a need for information has been created regarding the chilling effects exerted by aerosol propellants when sprayed onto the skin. Mr. Dunne reported on the development of a technique for the determination of the chilling effects of fluorinated hydrocarbon aerosol propellants.

The technique employs an iron-constant thermocouple enclosed in an aluminum foil envelope which is maintained in the range of human skin temperature by a restistance coil. The propellant is sprayed onto the foil, directly over the thermocouple, and the resulting temperature change is measured with a potentiometer pyrometer. Accurate and reproducible measurements of the chilling effects of the propellants can thus be obtained. It has been found that a reliable estimate of the chilling effects of the propellants on the skin itself can be derived from the data provided by this method. Mr. Dunne also presented data regarding the chilling effects of single propellants, propellant combinations, and propellant-solvent combinations.

E. E. Husted of Union Carbide Chemicals Co., New York, delivered a paper entitled "Consideration of Moisture in the Aerosol Industry" in which he discussed the effect of moisture in aerosol formulations. According to Mr. Husted, moisture enters the formulation from either the container, air, propellant, concentrate, or during the filling operation. Among processes for removing moisture are ketone, petrotane, isopropanol or ethanol drying, but he warned each drying

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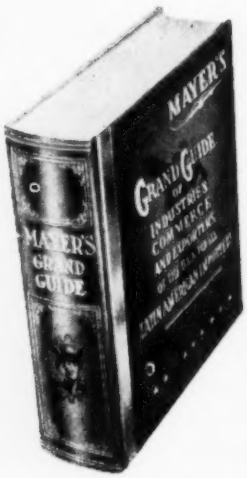

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product must be studied individually. He also discussed the point at which drying may be best accomplished, the types of equipment available for drying, and the cost of accomplishing the moisture removal.

Aerosols must contribute some new property or attribute to a cosmetic to warrant their growth and acceptance in an aerosol package, Donald H. Powers of Warner-Lambert Institute, Morris Plains, N. J., stated in his paper "Aerosol Aspects of Toiletries and Cosmetic Research." The ingredients for success of an aerosol product, he went on, are name, hope, and performance. Without these, many important cosmetic products have failed in spite of planning and thought toward their packaging and promotion. There is a particularly serious need for better methods for evaluating and measuring aerosol performance and uniformity, he said, and the aerosol producer can assist the cosmetic chemist by helping him set up accurate methods for measuring product behavior both in laboratory testing and for evaluating products in production.

The Aerosol Division session was concluded with a paper by Francis A. Mina of Lodes Aerosol Consultants, Inc., New York, dealing with "Viscosity-Pressure–Time Factors in Dispensing Aerosol Liquids."★★

Drops Brillo Case

(*From Page* 42)

held that Brillo is the second largest producer with over 45 per cent of sales in 1954 with S.O.S. in first place with over 50 per cent. Findings in the industrial market with respect to Brillo's alleged dominance, price leadership, depressing prices, practices in government-bid business, preserving markets for new uses, difficulty of entry, intensity of competition, and financial condition of competitors, were applied equally in the household market. He also found that success in this market depends on national advertising to obtain shelf space in retail outlets and that the two other companies competing with Brillo and S.O.S. are either unable or unwilling to make these large expenditures. After the acquisition neither Brillo's nor Williams' share of the market increased and Williams' share actually decreased slightly in the first full year after it was acquired.

Although the Commission ruled when the case was remanded to the examiner that other factors must be considered in determining, as a matter of law that industrial steel wool was the line of commerce, Examiner Piper again held in his initial decision last month that industrial and household steel wool are the relevant markets involved, and that these products meet the test laid down by the Commission. His decision is not a final decision of the Commission and may be appealed, stayed, or docketed for review.★★

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Sole Appoints Rep.

Sole Chemical Corp., Chicago, has announced the appointment of Monroe-Danford and Co., Weehawken, N. J., as technical representatives in New York and upper New Jersey. Maxwell D. Smart, Donald M. Shaw, and Roy H. Hoonhout of the Monroe-Danford organization are calling on the detergent, aerosol, cosmetic, and pharmaceutical formulating industries with Sole's line of surface active agents.

—★—

Carbide's "Sevin" Tested

"Sevin" insecticide, made by Union Carbide Co., New York, was tested recently at Boyce Thompson Institute for Plant Research, Yonkers, N. Y. Results indicate that the product is 200 times less toxic to goldfish than DDT.

A carbamate, "Sevin" is reported to control such forest insects as gypsy moth, bark and ambrosia beetles, eastern tent caterpillars, sawflies and sawyers. Because of the importance of safety to fish and wildlife in forest insect control programs, studies were undertaken to determine the degree of toxicity of "Sevin" compared with other insecticides now in use.

As Reader Sees It

(*From Page* 35)

basis of direct payment for information received rather than on a royalty basis.

We would be very grateful indeed if you could either pass the essence of this letter on to a suitable organization, or advise us whom you think would be in a position to assist. We then would make a direct approach.

Any assistance which you could give us in this matter would be gratefully received.

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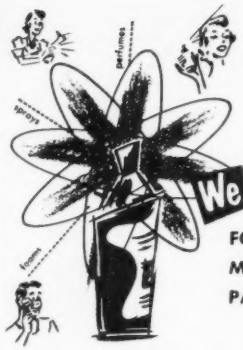

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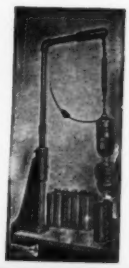

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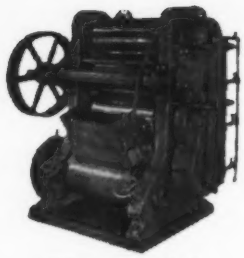

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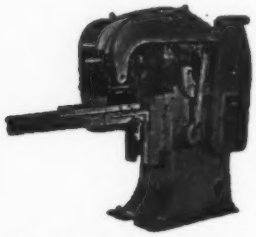

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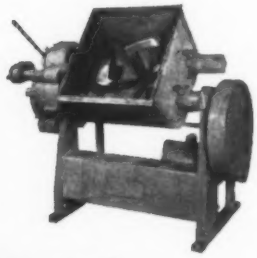

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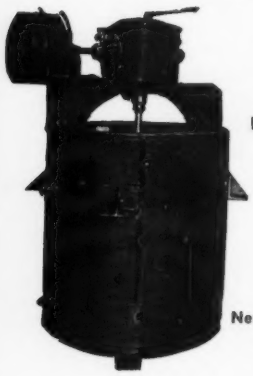

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Retired Soap Maker: 48 years experience making toilet and laundry soaps and glycerine recovery. 3 years spent at industrial school studying chemistry and soap making. Available part time basis. Mr. Michael Petrick, 1505 Wilson Ave., Bristol, Pa.

Graduate Chemist: 20 years experience, research and development sanitary chemical specialties and allied fields. Well rounded plant management experience. Delaware Valley location desired. Will relocate. Address Box 229, c/o *Soap*.

Expert Soap Maker: In the manufacture of toilet and laundry soaps and cleaning compounds, also recovery of glycerine. Will instruct and teach the making of these products and all soap plant operations. Will go any place. Address Box 230, c/o *Soap*.

Soapmaker: Experienced boiling toilet and laundry soaps. Also experienced in cold made, semi-boiled soaps and dishwashing compounds. Address Box 234, c/o *Soap*.

Biochemist - Bacteriologist: Seeking new position. 18 years experience in research and sales development of detergents and germicides. Preparation of literature, labels, and publications. Market research. Address Box 232, c/o *Soap*.

Chemist: Ph.D. Heavy experience in research, development, formulation and technology of vegetable oils, fats and derivatives. Publications. Desire position in which can exercise own initiative. Address Box 233, c/o *Soap*.

Technical Sales: 5 years sales experience industrial chemicals, surface active agents, coatings. 10 years laboratory and production. Prefer eastern location. Address Box 237, c/o *Soap*.

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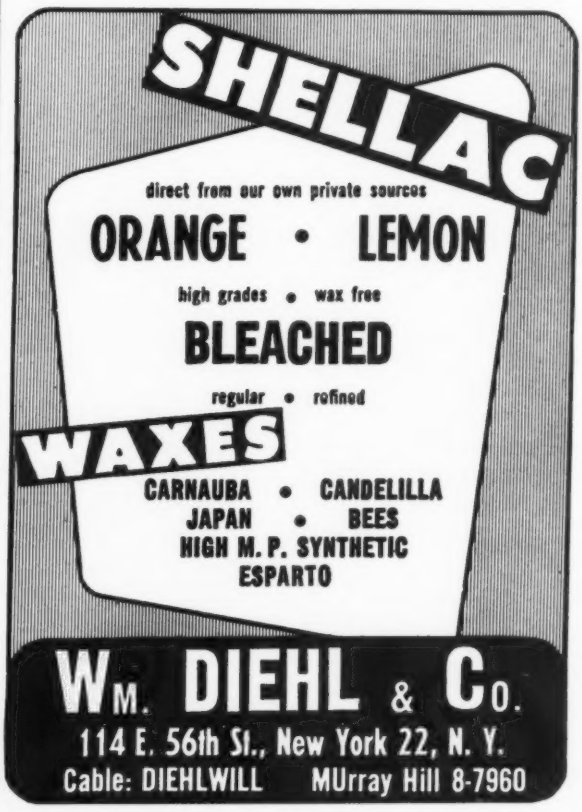

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Liquidation Sale: Louisville steam tube dryers, spiral ribbon mixers, jacketed crutchers. (12) Sperry 30″ x 30″ cast iron plate and frame filter presses 17 chambers, low priced for quick sale. Perry Equipment Corp., 1410 N. 6th St., Phila., 22, Pa.

Now Available: 78 page listing of "Surfactants" (1958) Price $2.50. Write John W. McCutcheon, 475 Fifth Ave., New York 17.

For Sale: *Soap* magazines January 1941 through August 1955. Two copies missing, April 1948 and May 1955. Dennis, 15074 Dexter, Detroit 38, Mich.

Interested in Chemical Specialties, see page 73 for more complete details.

Special Offer: Sanitary Chemicals . . . see page 154.

Baker Heads SOCMA

Samuel G. Baker, general manager of the organic chemicals department of E. I. du Pont de Nemours & Co., Wilmington, Del., was elected president of the Synthetic Organic Chemical Manufacturers Association, New York, at the association's 37th annual meeting held Dec. 3 at the Roosevelt Hotel, New York.

Samuel G. Baker

Joining du Pont in 1923 on the production line, Mr. Baker later served as a chemist and in various sales and managerial positions. He was named to his present post in 1956 and prior to that was general manager of the photo products department.

Other officers elected include: Carl A. Gerstacker, Dow Chemical Co., Midland, Mich., first vice-president; Chester M. Brown, National Aniline Division, Allied Chemical Corp., New York, second vice-president; James A. Singmaster, Jr., Monsanto Chemical Co., St. Louis, treasurer. C. Kenneth Egeler, Sherwin-Williams Co., New York, and Thomas C. Keeling, Jr., chemicals and dyestuffs division, Koppers Co., Pittsburgh, were elected to the board of governors.

Reelected honorary members of the board for one year terms were Dr. August Merz and Dr. Elvin H. Killheffer, past presidents.

—★—

Sinclair Names Vance

John W. Vance last month was appointed assistant sales manager in charge of chemical sales for Sinclair Chemicals, Inc., New York, a subsidiary of Sinclair Oil Corp.

District sales representative in Philadelphia since he joined the company in 1955, Mr. Vance has been associated with Mead Corp. and Rohm & Haas Co., both in Philadelphia.

—★—

Hooker Price Reduction

Hooker Chemical Corp., Niagara Falls, N. Y., has reduced delivered prices on its "Nialk" trichlorethylene in eight western states. The reduction reflects the same base price at the firm's plant in Tacoma, Wash., which produces "Nialk" for western consumers, as has prevailed f. o. b. at Hooker's Niagara Falls plant. The product is produced in five grades all selling at the same price. In carloads drum prices range from $0.1315 to $0.1465 per pound and in tank cars from $0.1205 to $0.1370 per pound in various western locations.

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Petersen Joins Shulton

Wayne Petersen has been named recently as sales supervisor in the consumer department of the Fine Chemicals Division of Shulton, Inc., Clifton, N. J. He will be responsible for consumer chemicals sales in Ohio, Indiana, Michigan, Wisconsin, Minnesota, West Virginia and parts of Pennsylvania, Kentucky and Illinois.

Combination Products

(*From Page* 89)

In some cases proper formulation balance may prove impossible. In other cases chemical stability will be a serious handicap. Perhaps where these problems are too involved to solve with a combination product, the same goal of doing two jobs at one time may be achieved by selling companion products. The insecticide or repellent formulation then could be added to the disinfecant in different amounts for specific jobs. Flexibility would be assured and long term stability of the combination product would not be a factor since the combination would be made up at time of use.

Product Registration

Registration problems must be considered. Mr. J. T. Coyne, Assistant Head, Pesticide Regulation Section, U. S. Department of Agriculture, Plant Pest Control Division, stated in a letter on this subject: "Insecticidal directions will be requested on the usual basis, irrespective of the presence of the germicide. . . . It would need to be clearly demonstrated that the insecticidal and germicidal ingredients are compatible and will not interfere with their biological activity.

In all cases of doubt as to the practical utility of the product for any of its proposed usages, it will be necessary to document an application for registration with appropriate data."

In Canada the registration problem would be somewhat different from the U. S. Disinfectants are regulated by the Food and Drug agency whereas pesticides are registered under the Pesticide Act which is administered by the Department of Agriculture. Pesticides must be registered prior to sale, but disinfectants do not need prior registration. However, they are subject to field inspection. Companies interested in these markets in Canada should check with the officials in Ottawa.

Much work will have to be done before any broad sale of disinfectant-insecticide or repellent combinations is realized. An estimate of the size of this market is not possible at this time since there has not been sufficient sampling to develop significant figures. However, a potential market does exist and each individual firm must decide if the effort to reach this market is warranted by the potential return.★★

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Aerosol Rules Compiled

The third edition of "Agencies and Regulations of Interest to the Aerosol Industry" was made available late in December by the Chemical Specialties Manufacturers Association, 50 E. 41st St., New York 17, N. Y. As the name implies, the 120 page compilation, in the form of loose leaf sheets, 8½ x 11 inches, with three holes punched in them for readily inserting in a three ring binder, covers Federal, State and many local agencies and their rules pertaining to the labeling, packaging, and shipping of aerosol products.

The manual was compiled by the executive office of CSMA and the Sub-committee on Public Regulations, Scientific Committee, Aerosol Division of CSMA. The regulations listed are those which it was felt are of most interest to packagers and marketers of pressure packages. The regulations and comments included were taken from official publications. In some cases, as the foreword states, "the compilation has been submitted to the particular organization for its comments."

Each CSMA member company receives one copy free on request, additional copies are $7.50 each. To non-members, the cost is $10.00 per copy.

To anyone engaged in the business of marketing or filling aerosols and other pressure packaged products this compilation is indispensable.

Believed to be the first such product in a pressure package is "Bowl Cleaner" of National Spray Can Filling Corp., Brooklyn. Packed by National in Crown 16 ounce can, valve is by Precision and cap by Sterling. Suggested retail price of package, which contains 14-ounces of product, is 98 cents.

—★—

Tyrol Joins Shulton

The appointment of William Tyrol as a sales supervisor for the consumer products of the fine chemicals division of Shulton, Inc., New York, was announced recently by William H. O'Brien, vice-president.

Previously Mr. Tyrol was with International Latex Corp., and had been associated with Whitehall Laboratories. In his new post he is responsible for sales of consumer chemicals on the west coast.

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2. Detergent Evaluation and Testing by Jay C. Harris.

220 pages, 26 illustrations. A critical selection of methods and procedures for testing detergents. Price $4.50.

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3. Soap Manufacture by Davidson, et al.

Volume I—537 pages, 66 illustrations, 118 tables. Covers history of soap, principles of soap manufacture, fats and other raw materials for soap manufacture. Price $13.50.

Volume II—Now in course of preparation.

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4. Modern Chemical Specialties by Milton Lesser.

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Coming Meetings

American Chemical Society, national meeting, Boston, April 5 - 10.

Chemical Specialties Manufacturers Association, 45th mid-year meeting, Drake Hotel, Chicago, May 18 - 20; 46th annual meeting, Mayflower Hotel, Washington, D.C., Dec. 7 - 9.

Drug, Chemical & Allied Trades Section of the N.Y. Board of Trade, annual dinner, Waldorf Astoria Hotel, New York, March 5.

Eastern Pest Control Operators' Conference, University of Massachusetts, Amherst, Jan. 21-23.

American Oil Chemists Society, 50th anniversary spring meeting, Roosevelt Hotel, New Orleans, April 20-22, 1959.

Association of American Soap & Glycerine Producers, 32nd annual convention. Waldorf-Astoria Hotel, New York, Jan. 20, 21 and 22, 1959.

National Flexible Packaging Association, annual meeting, Waldorf-Astoria Hotel, New York, Jan. 20-22.

National Packaging Show of American Management Association, International Amphitheater, Chicago, April 13-16; packaging conference, Palmer House, Chicago, April 13-15.

National Sanitary Supply Association, 36th annual convention and trade show, Conrad Hilton Hotel, Chicago, April 12-15; 37th annual convention, Fontainebleu Hotel, Miami, Fla., May 22-25, 1960.

Plant Maintenance and Engineering Show, Public Auditorium, Cleveland, Jan. 26-29, 1959.

Purdue Pest Control Operators' Conference, Purdue University, Lafayette, Ind., Jan. 26-30.

SAACI, annual meeting, Commodore Hotel, New York, Jan. 20.

Synthetic Organic Chemical Manufacturers Association, monthly luncheons, Roosevelt Hotel, New York, Feb. 10, March 11, April 14; annual outing, Cavalier Hotel, Virginia Beach, May 11 - 13.

Toilet Goods Association, 24th annual convention, Waldorf-Astoria Hotel, New York, May 12 - 14.

Western Packaging & Materials Handling Exposition, Civic Auditorium, San Francisco, Aug. 11, 12 & 13.

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Tale Ends

SHALL the meaning of the word, "soap," be redefined to mean and include all soaps, detergents, wetting agents, etc.? This interesting question is raised by The Indian Soap Journal which states that the designations of surfactants, detergents, surface active agents, etc. are just too much for the layman to grasp. To simplify matters, we all should agree the world over to retain "soap" to mean any and all products used for cleaning. Well, maybe so, but it sure will mix up the language plenty.

* * * * * *

Our old pal, Charley Luckman who was "the wonder boy of American industry" 10-12 years ago when he was president of Lever Brothers in the U.S., has dissolved his architectural partnership with his old college chum, William Pereira, says the news from Los Angeles. Since 1950, Pereira & Luckman are said to have been responsible for more than a billion dollars worth of construction. Off hand, we'd say that this is quite a bit better than Charley did in the soap business.

* * * * * *

Essential Oil Assn. of the U. S. A. held its 28th annual meeting in New York recently. The association embraces just about every producer and importer of aromatic chemicals, essential oils and other products for perfuming and flavoring in the U. S., a group doing some 75 million annually. Gert Keller, head of Schimmel & Co., New York, is president. Ray Schlotterer has been manager and secretary of the association since its inception.

* * * * * *

Coca Cola becomes a premium for the first time that we can remember. Procter & Gamble are now offering one free carton of Coke in Canada with each king-size box of "Cheer." A coupon is included in each package. There is a refundable deposit on the bottles. Advertising of "Cheer" which is said to be sold in 85% of all Canadian markets, has been getting a big push in the newspapers. We imagine that the juvenile pressure on mother to buy more "Cheer" could be overpowering.

* * * * * *

Wanna buy a sports car in good condition cheap? Check with Bob Abplanalp of Precision Valve. Bob is still saddle sore from a 250 mile in a Corvette from Yonkers to New England recently. Getting Bob's six foot plus, 200-pound frame into a sports car is like shoehorning a sardine into a can.

* * * * *

In England, they have a clean air law which restricts smoking chimneys in certain areas. We have them in the U. S. too. Some places, such laws work. Others are something of a joke. Anyway, recently a survey was made in Chesterfield, England, and it showed that women in so-called clean air zones spent only half as much for soaps and detergents as those in areas where the clean-air act does not yet apply and where chimneys still belch rich, black smoke over dresses, curtains, et al. We never before looked upon chimney smoke as the soap-maker's friend, but we're beginning to.

* * * * * *

Soap from straight elephant fat! That's one for the book. According to Eric P. Wood of Rhodesian Industries Co., Ltd. of Salisbury, Southern Rhodesia, down in Africa, (in a letter to F. V. Wells, editor of "Soap, Perfumery & Cosmetics") the District Commissioner of that area whose job is to dispose of marauding elephants and other animals, shot an elephant three years ago. He boiled up the fat from the carcass and saponified it in an open cauldron,—the kind which the cannibals used for stewing up missionaries,—and the soap has lasted for three years. Frugal people, these Rhodesians.

* * * * *

Even in mosquito extermination, sex raises its ugly head! A patent designed to entice male mosquitoes to their death has just been filed in Washington. It's an apparatus for reproducing the hum of a lady mosquito. It lures the male into a trap and he is electrocuted or killed by supersonic radiation or by spraying with an insecticide. The trap has been reported quite successful in heavy mosquito areas in Florida. Even some female mosquitoes are reported to be attracted by the hum of other females.

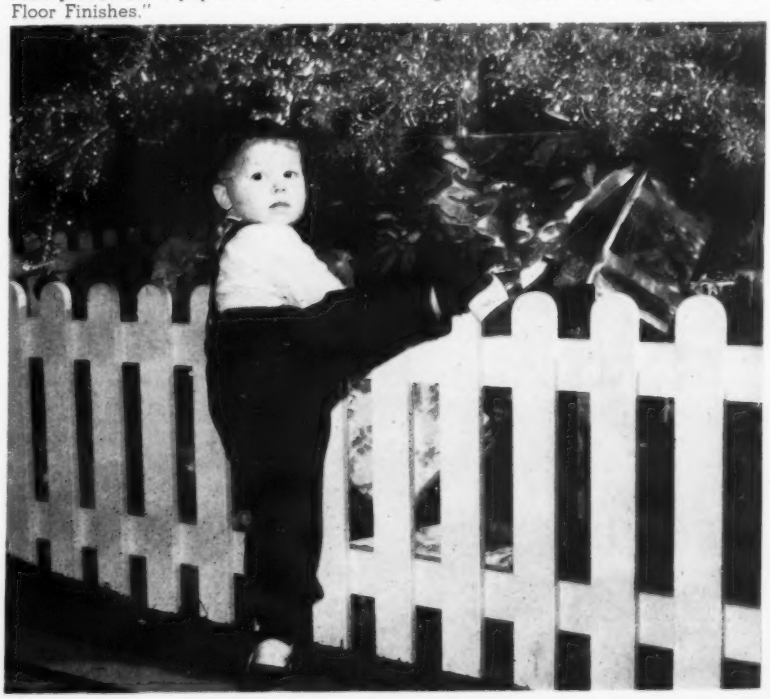
* * * * * *

Mike Lemmermeyer, prez of Aromatic Products, Inc., New York, and recently elected board member of the Chemical Specialties Manufacturers Assn., won first prize in the 13th annual art exhibit of the Woman's Club of Mamaroneck, N.Y., for a portrait of a Negro child. In the same exhibit, Mr. Lammermeyer also won an honorable mention for a water color of flowers. He is best known in the chemical field for his portraits in recent years of presidents of CSMA.

* * * * *

Bill Wallstein of West Chemical Products, Inc., Long Island City, chairman of the CSMA Greetings Committee, has come up with a rather novel and unique suggestion. This is that in preparation for the spring meeting of the Board of CSMA at Clearwater, Florida, next March, that the Association consider sending the entire greetings committee, composed of some 15 members, to Florida a week ahead of the meeting in order "to prepare the ground and acclimate the personnel of the hotel to the needs of the Board membership."

Too much speech making at the 45th annual CSMA meeting in New York last month drove Robert Alan Fuld, youngest attendant at the meeting, to seek diversion elsewhere. Here he climbs the fence at the base of the mammoth Christmas tree in the lobby of the Hotel Commodore to investigate the Christmas packages. Master Fuld is a third generation member of the Fuld of Baltimore clan. His grandfather, Melvin Fuld, is president of Fuld Brothers, Inc., and a former president of CSMA. Robert's father, Dr. George Fuld, is a staff member at MIT, where he received his Ph.D. Dr. Fuld presented a paper at the CSMA meeting on "Hardness Testing of Films of Floor Finishes."



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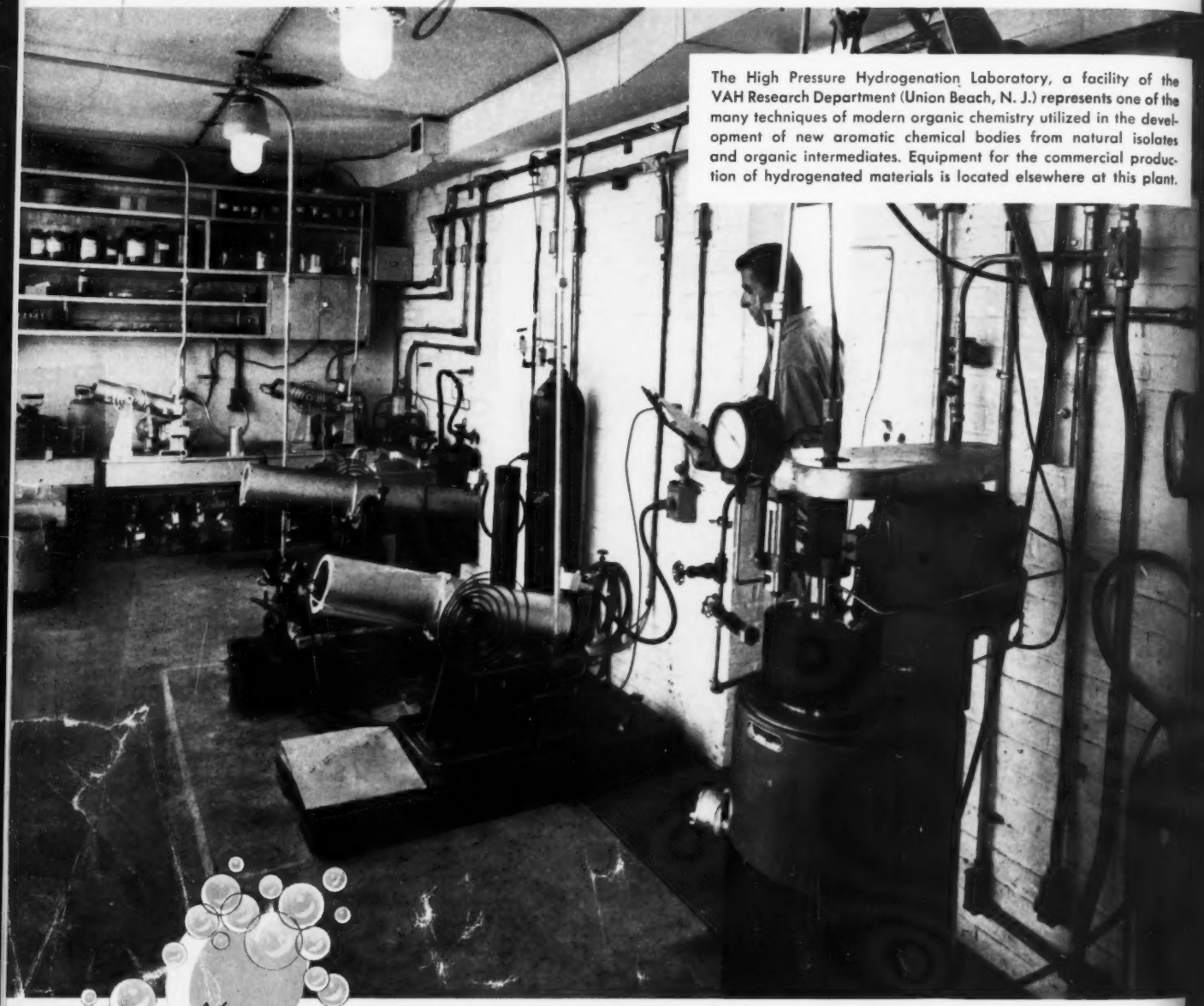

The High Pressure Hydrogenation Laboratory, a facility of the VAH Research Department (Union Beach, N. J.) represents one of the many techniques of modern organic chemistry utilized in the development of new aromatic chemical bodies from natural isolates and organic intermediates. Equipment for the commercial production of hydrogenated materials is located elsewhere at this plant.

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